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ABSTRACT

Data on high school students in occupational education classes in New York State during the late 1970s are presented from New York City and upstate school systems for four major areas: (1) demographic characteristics (sex, ethnic origin, disadvantaged status, handicap, age, grade level); (2) socioeconomic environment (family income, living arrangements, number of siblings); (3) performance measures (occupational education grades, academic education grades, standardized achievement test scores); and (4) plans after graduation. Results of the survey are published and discussed in the report, together with a description of the study's methodology and sampling procedures. New York City and the upstate area are considered separately. Recommendations are offered for (1) reducing sex stereotyping in occupational education; (2) examining achievement tests for cultural and sex bias and for appropriateness in testing students living in rural areas; and (3) more training in basic skills for occupational education students. (GC)

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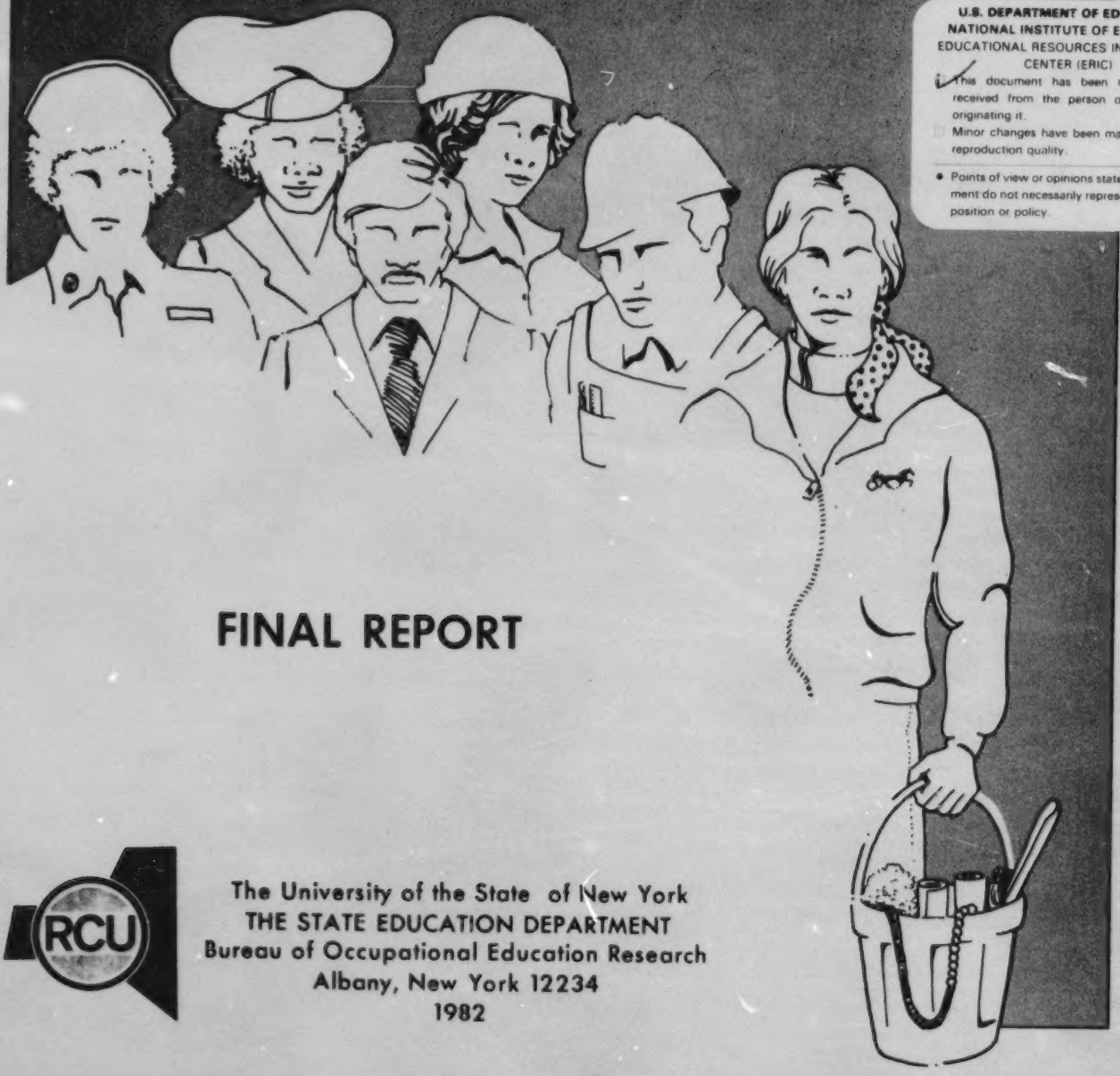

FINAL REPORT

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of Occupational Education Research
Albany, New York 12234
1982

A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS OF SECONDARY PUBLIC SCHOOL OCCUPATIONAL EDUCATION STUDENTS IN NEW YORK STATE

FINAL REPORT

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The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of Occupational Education Research
Albany, New York 12234
1982

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PREFACE

This study was the result of occupational education planners recognizing that empirical information about secondary occupational education students is the foundation for developing programs to meet the real needs of this school population.

Staff of the Bureau of Occupational Education Research, under the direction of the Assistant Commissioner for Occupational and Continuing Education, defined the goals of the research and formulated the procedures for the study. The publication was developed under provisions of the Vocational Education Act of 1963 (P.L. 88-210), and 1976 Amendments (P.L. 94-482), and was carried out by Lorin Cooper, Associate in Research, Bureau of Occupational Education Research.

The final report of the study contains sections on student socioeconomic and demographic characteristics, school performance, and plans after graduation, presented by type of delivery system. In addition to the full report, three publications were prepared. They are: The Summary, an abridged version of the Final Report, with emphasis on project findings; the Technical Supplement, which displays data tabulations used in the interpretation of project findings; and Related References, a list of citations related to the research topic but not used in the full report.

Specific questions on the study's methodology and findings may be referred to:

Chief, Bureau of Occupational Education Research
The New York State Education Department
Albany, New York 12234

ACKNOWLEDGEMENTS

Completing this study required the joint efforts of many persons, both within and outside the State Education Department. Most important were the students who shared personal information about themselves and their families. The generosity of local teachers who made school records available is greatly appreciated.

Questionnaires were edited and prepared for keypunching by Bureau of Occupational Education Research staff. Keypunching, computer programming and running the data analysis was done by the Division of Electronic Data Processing. Staff of the Bureaus of Statistical Services and Elementary and Secondary Testing Programs were consulted for their expertise on a number of topics. State Education Department data was provided by the Bureau of Educational Data Systems. Technical assistance in data analysis was provided by Michael J. O'Neil, Associate in Research. Dorothy H. King, Associate in Special Occupational Education Services, coordinated project activities and prepared the final documents for publication.

Many people supplied expert opinions and factual information. John Bower of Cornell University provided extensive assistance with computer analysis. Charles DeVoe, Bureau of Educational Data Systems, provided OEDS data and assisted with the questionnaire design. Edith Hunsberger, Bureau of Elementary and Secondary Testing Programs gave technical assistance in analyzing student testing information available on students. Philip Pillsworth, Bureau of School and Categorical Programs Evaluation accessed and made available extensive socioeconomic data previously accumulated by the State Education Department. Assistance in use of the CUNY University Application Processing Center data files for the New York City section was provided by George Finn and Richard Wonder of that agency.

Within the Bureau of Occupational Education Research members of the staff were always helpful and supportive. Marjorie Horn edited the final report while a special note of appreciation must go to the BOER secretarial staff who spent many long hours typing and retyping material which was to eventually become this final report.

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CHAPTER I

INTRODUCTION

Occupational education provides a service to society as well as to individual students. By teaching the skills that students must learn in order to find employment, occupational education helps to make available a trained labor force to meet the needs of the community. To accomplish this dual purpose, occupational education planners and curriculum developers at all levels should be familiar with the personal characteristics of their students and should be sensitive to each student's aspirations.

State and regional planners representing the educational community are the persons who have the responsibility for acknowledging labor market requirements for trained workers while, at the same time, considering the social and personal needs of communities and individuals. The State Education Department Office for Occupational and Continuing Education is committed to responding objectively to these responsibilities. This study was undertaken to provide a data base for the articulation of the needs of secondary occupational education students in New York State. A survey of New York State public high school students provided the data for the profiles which comprise the major portion of the report. The profiles should be useful to educational planners and to school personnel in better understanding the characteristics of occupational education student groups and in developing instructional programs to meet their needs.

Purposes of the Study

Occupational education planners need data-based information about occupational education students. To meet this need, profiles were constructed using specified variables, viewed across a variety of strata, which were based on data from a large sample of secondary occupational education students. The profiles show both similarities and differences among and between student groups

The purposes of the study were:

1. to identify and describe secondary occupational education students in broad terms;
2. to organize the descriptive data into student profiles by total sample and by subgroups (i.e., program cluster, delivery system, population density);
3. to discover performance levels of students in occupational and academic courses and on standardized achievement tests; and
4. to examine the after-graduation plans of occupational students by total sample and by subgroups.

Limitations

No attempt was made in the study to construct profiles of non-occupational education students or to compare occupational education students with any other group. On the basis of this study only general statements can be made about possible differences between occupational and non-occupational education students

Student unit records varied from agency to agency making it difficult to get complete and comparable unit record data. Additionally, a number of different achievement tests were used in the different schools surveyed. The necessity of

using non-comparable data bases for New York City students and for students in upstate schools resulted in a further limitation. This is discussed in greater detail later in the report.

Literature Review

Because of the lack of hard data on which to base firm assessments, secondary occupational education leaders are forced to make generalizations about the types of students enrolled in occupational education courses. Echternacht (1976) points out that "vocational education literature ...is extremely limited regarding the characteristics of high school vocational education students." Generalizations based on insufficient data result in what, too often may be erroneous statements and erroneous concepts of occupational education students. About this issue Leighbody (1972) says:

> In reality, vocational education has different images in different places, and in the eyes of different observers...Yet the idea persists that vocational education lacks the status of prestige that it deserves and that this reputation must somehow be overcome so that it can enjoy and appear equal to that of college preparatory education. The status of occupational education is related in part to the status of the occupations which it serves, and while it may seem strange that a highly industrial society would not place the highest value upon occupations most vital to its economy, the prestige of occupations does not seem to rest upon these grounds (pp. 123-4).

Whatever the facts, it is hardly questionable that the lack of hard data affects the points of view not only of occupational educators but also of academic educators, parents and students. Echternacht cited a Federal General Accounting Office report which pointed out that, in one large city, expensive facilities were not being used because "students and their parents believed that the vocational education student was being trained to be a 'second-class citizen,' as opposed to the ideal of going to college and achieving meaningful positions." In some localities this type of misinformation not only has hurt programs but also has resulted in the stigmatizing of occupational education students. The development of profiles which depict the characteristics of secondary occupational education students will provide factual information with which to view this segment of public education. This study will also serve as a model for developing profiles of occupational education populations in the future.

In May, 1980, a Gallup poll was conducted on the subject of attitudes toward the public schools (Kappan, 1980). The American public indicated in that survey that the two areas of education needing the attention of the newly created United States Department of Education were, first, basic education, and second, vocational training.

What should be the role of occupational education in a democratic society? Opinions vary from person to person, but it has been shown that Americans expect the schools to play a major role in preparing children for life as adults in a democracy. Strike (1980) wrote, "Two major goals of schools are to help students lead productive and enjoyable lives to assist them in taking on the duties of citizens in a democracy."

But what is expected of vocational training in New York State? Narrowly defined, occupational education trains students in entry level skills for a particular field of work, with emphasis on the students getting paying jobs when the program is completed. Nevertheless, many argue that other aspects of occupational education, such as acquiring knowledge of mathematics and science or learning how to communicate with others, are equally important. There is, also, the hope that joy and satisfaction may be realized from the work for which one is trained (Becker, 1980).

In the Introduction of this report, the importance of learning the characteristics of occupational education students in order to plan occupational programs effectively was emphasized. A significant study on student characteristics is the National Longitudinal Study of the High School Class of 1972. This study surveyed "over 1,000 public and nonpublic schools and almost 18,000 seniors" from across the nation (Fetters, 1974). Echternacht analyzed data from the study in an attempt to identify characteristics that would distinguish vocational students from those in academic and general programs. He found some distinguishing characteristics:

> After much work in developing constructs, two conclusions were reached. First, academic students were superior to both general and vocational students in terms of measured academic ability. The relationship between curriculum and academic ability was both strong and reliable. No other variables appeared to distinguish strongly academic from vocational and general students. Second, although the relationship was less reliable and considerably less strong than was the case for distinguishing academic students, vocational students differed from general students primarily in terms of alienation, focus on the work world, channeling, sex and race. Typically, vocational students were less alienated from school and focused more on the work world than general students; they were less frequently assigned to their high school program and expressed more choice in selecting their high school programs than did general students (p. 490).

Other findings relevant to this study were reported by other investigators. Sparks (1977) and Schriver and Bowlley (1971) point out that occupational education has benefits which are in addition to occupational training. Echternacht's analysis seems to support this thesis, as he notes:

> Vocational students as a group appeared to be as low as, and in some instances lower than general program students in tested academic ability. Nonetheless, vocational students had achieved higher percentile ranks than general students consistently for all analysis groups.
>
> Vocational and general students both scored higher than academic students on the self-esteem scale and lower on the control of environment scale. Higher scores on self-esteem were even more noticeable for black students in vocational programs. Although black students as a whole scored lower than white students on the self-esteem scale, black students in vocational education programs scored higher on this scale than blacks in either academic or general programs. With the exception of the black males group, where academic students scored highest on the occupational security scale, vocational students scored consistently higher than academic and general students on occupational security. Vocational students also scored relatively high on importance of family and occupational contacts - i.e., choosing a job because one had experience in the

area, had a friend or relative in the same line of work, or knew of job openings in the area (p. 484).

Bowles and Slocum (1968) indicated that the vocational student is exposed to experiences that reinforce handicaps to educational achievement. They describe the vocational student as one who has a low self-image. (It should be pointed out that the authors were indexing scholastic self-image which is not synonymous with self-esteem as referred to in the Echternacht article.) This finding is not surprising in light of the apparent alienation of vocational students from academic education. However, Bowles and Slocum seem to be on unsound ground in stating that, "these data suggest that students planning vocational or business training are likely to be low in their self-evaluations and self-confidence." Data from the National Longitudinal Study contradict that statement.

The data bases used to construct profiles of occupational education students in New York State included socioeconomic and demographic data as well as information on school performance and students' plans after graduation. Previous studies of occupational education students have reported data on some of these categories of variables, but no study included all of these categories. Some of these studies are described in the following paragraphs, by category of variable.

Socioeconomic Variables. In general, such studies as those of Kay (1971), Osso (1974) and others show that socioeconomic variables affect student choice of academic or occupational education and also influence students' plans after graduation. The effects of socioeconomic variables on student performance have been under study by the New York State Education Department (SED) since 1970 on a statewide basis. However, the studies in which the effects of these variables were examined were associated with elementary school student performance in reading and mathematics.

In order to explore relationships between socioeconomic variables and occupational education performance, the SED Bureau of School Programs Evaluation 1975 Technical Manual, Performance Indicators in Education (PEI), was reviewed to learn what that research effort had found. The independent (predictor) variables (associated with grades 3, 6 and 9) commonly used were:

1) the student's living arrangement - whether in a two-parent family or one-parent family or some other arrangement;
2) parents' educational status;
3) number of siblings;
4) parents' occupations; and
5) family income.

One conclusion of that study was that the larger the percentage of two-parent families in a district, the higher the district's expected Pupil Evaluation Program (PEP) test score average.

The U.S. Department of Commerce reported that the per capita income for New York State in 1979 was $9,098. The average family income, including families of all sizes, was $18,396 in 1977. It is assumed that this figure would have to be adjusted upward for April-May 1979, the year when the data for the study were gathered. Sales and marketing data for 1979 gave $17,487 as the effective buying income for a family of four. Poverty level income for 1979 (this figure from the U.S. Bureau of Labor Statistics) was $6,700 for a family of four, not including food

stamp allowance, Medicaid or other aid. It is clear that family income figures vary, depending on data base and source.

For the occupational education profile study, three predictor variables were used: students' living arrangements, number of siblings, and family income. The latter variable does present problems, because students have trouble reporting family income accurately.

Demographic Variables. Age, sex, grade level, ethnicity, and handicap/disadvantagedness of students are included in the profiles. Educators recognize that there are problems of equal access and sex role stereotyping, problems associated with ethnicity due to the immigration of new Asian and Hispanic groups in addition to previous minorities, and problems related to providing education for the handicapped and the disadvantaged. Each of these problem areas challenges the concept of equal opportunity in the total American educational system.

The obligation of occupational educators to provide handicapped and disadvantaged students with adequate training is both legal and moral. Several studies, such as those of Howard (1979), Rumble (1979), Yoshimura and Suzuki (1978), and Osso (1974) indicate that occupational education is prominent in the education of these groups of students. State and Federal governments have enacted legislation requiring schools to provide education for each group. It is a priority in New York State. Data concerning the handicapped and disadvantaged students are included in some of the profiles.

Kay (1969) reported differences between programs in occupational education which apparently are related to social sex role expectations. Osso (1972, 1974) and the Bureau of the Census Current Population Reports (1976) also found program differences based on sex and ethnicity. Glazer (1981) disclosed that educational problems associated with ethnicity are no longer restricted to black students and their distinctive cultural heritage. New cultures and languages are adding to the perplexities.

Occupational Education Performance. A question that is important to occupational educators is: how well do their students perform in both occupational and academic courses? To answer this question, data on achievement test scores, academic grades and occupational grades were collected. There is much in the literature about achievement test scores and academic grades of secondary students as a total population, but very little on achievement test scores, academic grades and occupational grades of secondary occupational education students as a subgroup. These latter variables and their relationships have been analyzed and reported in this study.

Plans After Graduation. Occupational education planners set objectives for occupational education training around which programs, curriculum and instruction are designed. It is important to know whether the things students learn are in harmony with their after-training goals and aspirations. Osso conducted a study of secondary occupational education students' plans after graduation. He found:

> Enrollees' plans showed some rather significant differences by grade. Enrollees who were planning to get a job or continue full time in their present job predictably increased their percentage from grade to grade. The percentage of those who were planning to get a job in the field of their vocational training varied from 20 percent in the 9th grade to 34 percent in

> the 11th grade. ... Fully one-third of the 12th graders said that they were going to continue their schooling. This desire was particularly pronounced in the fields of health and distributive education. Enrollees in agriculture and trades/industry were least likely to continue their schooling (p. 23).

Osso also learned there were differences in plans by program area. For example:

> About 30 percent said that they would get a job in the field of their vocational training. The three fields showing the highest percentages in this category were health (40 percent), office/business (39 percent), and trade/industry (37 percent)... About 33 percent of the 12th graders enrolled in vocational education classes said that they would attend a school of some type the next year ... There was considerable difference by program area in the type of school they planned to attend, with a predominance of interest in colleges and junior colleges in all program areas (p. 23).

Studies of plans after graduation and follow-up studies of graduates attempt to address the problem of instruction related to students' career goals. While percentages vary from study to study, differences are found between groups where plans after graduation are concerned.

Definitions of Terms

For the purposes of this report the following definitions of terms are used:

1. Boards of Cooperative Educational Services (BOCES) - boards elected by the board members and trustees of component school districts in each of the 44 supervisory districts responsible for the development of policies to apply to the delivery of shared services requested by districts and approved by the Commissioner. The term BOCES is also commonly used to refer to the organization or agency governed by the board whose executive officer by statute is the District Superintendent of Schools.

2. Big City Districts - cities in New York State with total population in excess of 125,000 people. There are presently five such cities: Buffalo, New York City, Rochester, Syracuse, and Yonkers.

3. Disadvantaged - students with academic and/or economic disadvantagedness requiring special services assistance in order to successfully complete their occupational program. (Students participating in the free lunch program would be an example of the economically disadvantaged.)

4. Handicapped - other than academically or economically disadvantaged students requiring special services, assistance or a modified program to be provided in order to successfully complete the program. (Students should be reported here only if the committee on the handicapped has identified them as having one of the following handicapping conditions: mental retardation, hearing impairments or deafness, speech impairments, visual impairments or blindness, serious emotional disturbances, orthopedic impairments, or other serious health impairments.)

5. Local Education Agency (LEA) - any school district that has occupational education programs and which is not a Big City District.

6. Occupational Education - an educational program "which purports to impart entry level job skills." "Entry level job skill is interpreted as referring solely to paid employment" (Federal Register, Vol. 42, No. 191:10-3-77). An occupational education program is a "planned sequence of courses, services or activities designed to meet a specific occupational objective" (Federal Register, Vol. 42, No. 191:10-3-77).

7. Occupational Education Planning Region - one of thirteen groups of counties in New York State established for planning purposes.

Statement of Objectives

The general objective of this study was to determine the personal characteristics of secondary occupational education students served by the various programs and courses in New York State. Data on personal characteristics were used to develop the profiles which can be used by guidance counselors, teachers and administrators in assisting students with career planning and program selection. The study also can be used as a model for future studies describing and defining student characteristics, and can provide a basis for comparisons of changes, occurring over time, in the characteristics of grouped occupational education students.

The profiles were structured to include program, geographic and system variables as follows:

1) seven occupational education program clusters
2) three types of delivery systems
3) population densities
4) six regions
5) nineteen sample institutions

Research questions delineated for this study are:

1. What type of student is attracted to occupational education?
2. What is the ability level of occupational education students?
3. Are there indicators of student aptitude for occupational education?
4. Will the profiles fit a commonly perceived concept of occupational education students?
5. Will the profiles suggest clientele which are not presently being served by occupational education?
6. What are the implications of the profiles for occupational education instruction?
7. What are the implications of the profiles for occupational education program planners?
8. Will the profiles imply the existence of sex bias or sex role stereotyping in occupational education?

The hypothesis tested was that there would be significant differences between and among the various strata and subgroups of the sample.

CHAPTER II

DESIGN AND METHODOLOGY

This study was conducted as a descriptive research effort to formulate up-to-date profiles of secondary occupational education students. Occupational education student enrollment and completion data are collected for New York State schools through the Occupational Education Data System (OEDS) and the Occupational Education Reporting System (OERS). Annually, all public school districts provide the Education Department with information on the number of students enrolled in occupational education programs and the number completing or leaving these programs during the year. Both OEDS and OERS data were examined for possible data extrapolation and were used in the study for design of the upstate sample and for comparison of some variables.

Study Variables. Data were gathered in four major areas:

1) **Demographic Characteristics**
   - A. Sex
   - B. Ethnic Origin
   - C. Disadvantagedness
   - D. Handicap
   - E. Age
   - F. Grade Level

2) **Socioeconomic Environment**
   - A. Family Income
   - B. Living Arrangements
   - C. Number of Siblings

3) **Performance Measures**
   - A. Occupational Education Grades
   - B. Academic Education Grades
   - C. Performance on Standardized Achievement Tests

4) **Plans After Graduation**

Study Design, Upstate Agencies

In this study, the term "upstate agencies" refers to all educational agencies offering occupational education at the secondary level which are not a part of the New York City school system.

Sample Selection. In the planning stages of the study, the methodology for selecting the upstate student sample was conceived. It was decided that data collection would be conducted on an educational agency basis, that is, a group of educational agencies would be selected as data collection sites. The selected sites were all in one or another of three different "delivery systems," a term used in this study to embrace each of the following: (1) Boards of Cooperative Educational Services (BOCES), which are regional agencies serving a number of component school districts; (2) Big City Districts; and (3) local school districts, or local education agencies (LEA's). It was planned that questionnaires would be administered to students enrolled in occupational education programs at the selected agencies, and the data collected from the completed questionnaires would be analyzed and reported by occupational education delivery system.

Data collection sites were determined through development of a matrix using the OEDS/OERS data base showing, for each upstate education agency, both the occupational education program clusters offered (Agriculture; Distributive Education; Health Occupations; Home Economics; Office and Business; Technical; and Trade, Service and Industry) and the 1977-78 enrollment. Not every educational agency offers all occupational educational program clusters. The total matrix was then submitted to a systematic reduction process.

1. In each educational agency, any program clusters enrolling 10 or fewer students were deleted from the matrix.
2. Any educational agency with fewer than five occupational education program clusters remaining was deleted from the matrix.
3. Any educational agency which did not offer both agriculture and trade, service and industry education was deleted from the matrix.

This reduction process may have eliminated some portion of the occupational education student population which differed on one or more of the variables studied. Any possible bias was taken into consideration in data analysis and in the report of study findings.

The matrix reduction process caused the deletion of 44 educational agencies. The 77 remaining agenices were then contacted through a standarized telephone interview to inquire whether data on the variables being studied were available and whether the agency was willing to participate in the study (Appendix I). As a result of the telephone survey, 47 agencies affirmed that they had uniform data and wanted to participate.

The two primary criteria used for final educational agency selection were:

1) population density (big city, small city, suburban and rural)
2) type of delivery system.

The application of these criteria resulted in the selection of 19 educational agencies which met the criteria for the student sample as a composite group, reflective of all agencies with occupational education programs.

Sample size. Once the 19 agencies were selected, sample size was addressed. The total sample was to be stratified on two major factors: (1) program cluster (seven major occupational education clusters); and (2) type of delivery system (BOCES, Big City Districts, and LEA's), forming a 7 x 3 matrix. The size of the sample for each individual cell was determined using 1977-78 OEDS data to indicate: (1) the population totals for each cell; and (2) the size of the sample needed for statistical integrity at the 95% confidence level with a 5 percent permissible error (Table J.2 of the NEA publication "Sampling and Statistics Handbook for Surveys in Education"). This procedure resulted in a total sample of 5, 949 students.

Rural and urban local educational agencies are represented as are small city districts and comprehensive and academic suburban high schools with occupational programs. The educational agencies participating in the study are listed in Appendix II.

Data Collection. A two-part questionnaire was developed for completion by students and educational agency personnel (Appendix III). Information on student plans after graduation and on family socioeconomic status was provided by indi-

vidual students. Student unit record data were supplied by educational agency personnel.

The instrument was pilot-tested on 108 students to decide the time needed to complete the questionnaire and to check the reliability of questions and instructions. Students generally were able to complete the questionnaire in 15 minutes without major problems with the questions or the instructions. Confidentiality of data was maintained throughout the study.

The procedure followed for data collection was as follows:

1. Chief school officers of the selected agencies were contacted to request their approval for agency participation in the study;
2. Occupational education directors were contacted to arrange dates for collection (Appendix IV);
3. Staff from the Bureau of Occupational Education Research (BOER) visited each data collection site to set up the sampling procedure and questionnaire administration;
4. A table of random numbers was used at each site to assure the randomness of student selection within classes which were primarily at the 11th and 12th grade levels;
5. Questionnaires (Part I) were administered to students by agency personnel and BOER staff;
6. Agency personnel and BOER staff completed Part II of the questionnaires using data from student records;
7. All identifying names were removed from the completed questionnaires which then were returned to BOER.

Sample Validity. To aid in judging sample quality as a basis for generalizing findings, sample validity was verified in several ways. First, the SED Bureau of Statistical Services was consulted to help assess the geographical representativeness of the upstate sample on the basis of population density and per capita income. Population density was used to isolate rural, suburban, small city, and big city locations. The income factor was loosely defined as "below average per capita income districts" and "above average per capita income districts." This analysis indicated that the total sample was representative on both population density and per capita income variables. It should be noted that atypically high per capita income districts were not represented in the sample.

Sample data were compared proportionately with OEDS population data on the variables of sex, ethnic origin, program cluster, disadvantagedness and handicap. The chi-square "goodness of fit" test was used to detect statistically any differences between the sample data and OEDS total population data. With minor exceptions (noted in the findings), sample data appeared to be representative of the population within the confidence level and error limits established for the study.

Data Analysis. To provide a common metric for the performance levels of occupational education students in occupational and academic courses and on standardized achievement tests, four grade range equivalents were developed. While this procedure sacrificed precision in terms of statistical treatment, it allowed for aggregation of data which vary by occupational education program.

The grade ranges used in the study were:

1) Occupational and academic grades
   A or (90-100) - exceptional performance (honors)
   B or (80-89) - above average
   C or (70-79) - average
   D - F or (0-69) - below average

2) Standarized achievement test data
   90th - 100th percentile - exceptional
   65th - 89th percentile - above average
   35th - 64th percentile - average
   0 - 34th percentile - below average

Questionnaires were edited and prepared for keypunching by BOER staff. Data were analyzed using the "Contingency Tables and Related Measures of Association: Subprogram Crosstabs" from the Statistical Package for the Social Sciences (SPSS). This analysis produced data sets by each stratification factor and combination of factors. In addition, a printout was produced for each educational agency participating in the study depicting its student population on the variables studied.

Study Design, New York City Schools

Characteristics of secondary occupational education enrollments in New York City schools are reported as a separate section of the study. This was necessary since sample data could not be obtained directly from all students. Therefore, the student questionnaire was not administered to any students in New York City schools.

In order to provide some information on the New York City high school occupational education population, several existing sources of data were investigated. The data presented in this study reflect an aggregate of information on various segments of the occupational education student population in New York City. These segments are not representative samples. Due to data differences, no comparison can be made between New York City students and those represented in the upstate sample. In addition, the reliability of New York City enrollment data has not been established.

Data sources used for this section of the study include: Basic Education Data System (BEDS); Occupational Education Data Systems (OEDS); a Delta Research Corporation study of ethnicity in New York City; and, a sample of applications to City University of New York (CUNY) from five vocational and comprehensive New York City high schools. Publications of the New York City Board of Education also were analyzed as possible sources of information on the characteristics of occupational education students. The publications used were School Profiles: a Survey of the Occupational Education Delivery System in the Boroughs of the Bronx, Brooklyn, Manhattan, Queens and Richmond (five separate publications) and the Directory of the Public High Schools.

Five high schools categorized by content of student program area were selected for study. They were: Clara Barton - Health Occupations; John Bowne - Agricultural Occupations and Business Occupations; Alfred E. Smith - Trade, Industrial and Service Occupations; Eli Whitney - Health, Business and Trade Occupations; and Norman Thomas - Business and Distributive Education Occupations. The five high schools are categorized organizationally as being either academic-comprehensive, vocational technical, or educational options schools.

Academic-comprehensive high schools combine college preparation with career-oriented shop programs and are largely neighborhood schools. According to the Directory of the Public High Schools 1980-81:

> In these schools, business skills training is available, and students can study business machines, business arithmetic and law. There are advanced placement and honors classes and college credit courses, as well as remedial programs, home economics, industrial arts, and career-oriented programs. There are also a number of special progams (Cooperative Education Executive Internship Programs) open to students who attend their zone schools... Several academic-comprehensive high schools offer special courses requiring screening for admissions. These courses are in the fine arts, the sciences, and in various career-related fields (p.1).

Vocational technical high schools prepare students for jobs in the trades and for postsecondary education in a college or technical school. The Directory of the Public High Schools 1980-81 notes:

> In vocational technical high schools, the school day is slightly longer than in other schools . About half the school day is spent in shop. The remaining time is spent learning basic high school subjects, such as English, social studies, and science... Some vocational technical high schools require entrance examinations... There are also many trade and technical courses which do not require entrance examinations. (p. 1)

An educational options school is a school which offers a three-year sequence of courses for a job in a career area while also preparing students for college. The 1980-81 Directory of the Public High Schools indicates:

> The career areas include: communications, computer data processing, oceanography, health services, criminal justice, technical agriculture, and others. Vocational options do not require entrance examinations. Some educational options programs are open only to residents of a particular borough; others are open citywide. (p. 1)

The five schools fit into the above categories as follows:

1) Academic-comprehensive - John Bowne
2) Vocational technical - Eli Whitney and Alfred E. Smith
3) Educational options - Clara Barton and Norman Thomas

The City University Applications Processing Center (UAPC) provided data on selected 1979 graduates from the five high schools. The UPAC maintains data files on all students who submit applications to colleges in the CUNY system. Although information is available only from those students who submit applications, the data are organized on an individual student record basis. The five high schools, collectively, offer all seven occupational program clusters and potentially draw from all borough high schools. Some characteristics of the five high schools examined are described in the following paragraphs. Data included in the descriptions were provided by UAPC.

John Bowne High School had a total of 828 graduates in June, 1979. Eighty-two percent were occupational education students. Of the occupational education students graduating, 41% were male and 59% were female. John Bowne High School

offers programs which prepare students for college and for careers in a wide variety of career areas including agricultural education. Programs are also available for emotionally handicapped, physically handicapped and non-English-speaking students.

Eli Whitney Vocational High School graduated 495 students in June, 1979. Ninety-four percent of the graduates were occupational education students. Of the occupational education students graduating, 36 percent were male and 64 percent were female. Eli Whitney Vocational High School is a multitrade vocational high school open to students of both sexes throughout the city. Unscreened vocational courses (i.e., those not requiring an entrance examination) are offered in appliance repair, business machine repair, business and office education, cabinet making, health careers, and other occupations. A cooperative education program is available in conjunction with some vocational courses. Some special education classes are offered.

The Alfred E. Smith Vocational Technical High School had 230 male occupational education students graduating in June, 1979, the total graduating class for that year. This school prepares students for post-high school technical training, college entrance, or direct entry into the job market. Courses relating to careers and which require a three-year vocational sequence are architectural drafting, diesel engines, solar heating, carpentry, building and construction, auto mechanics, climate control, auto body repair, and plumbing. Special education programs are available in health conservation for emotionaly and neurologically handicapped students.

Clara Barton, an educational options high school, had a total of 512 graudates in June, 1979. Ninety-one percent were occupational education students of whom nine percent were male and 91 percent were female. The high school prepares students for college programs and for entry-level positions in a wide range of health professions. Special programs are available for students speaking English as a second language.

The Norman Thomas High School for Commerical Education, also an educational options high school, graduated 863 students in June, 1979, all of whom were occupational education students. Fifteen percent of the students were male and 85 percent were female. This school offers specialized training in business careers and a full academic program for college preparation. A cooperative education program provides job training for eleventh and twelfth grade students who are over sixteen years old. Students in the cooperative education program alternate between attending high school and working for pay every other week. An executive high school internship program is also available to high school juniors and seniors. Interns serve as special assistants to executives in private and public agencies and organizations on a full-time basis for one school term. Vocational courses are offered in secretarial, accounting, data processing and marketing careers.

CHAPTER III

FINDINGS AND RESULTS

Demographic Characteristics - Upstate Sample

Findings of the study and results of the data analyses are presented in a series of student profiles. Each profile shows the relationship of at least one dependent variable (e.g., grade level) to an independent variable (e.g., sex of students) for the same group of students. Emphasis is placed on those findings showing significant differences between groups, primarily in the upstate sample. New York City data are presented separately since the nature of the data does not allow for comparison with the upstate sample.

Profile 1 - Sex of Students. The distribution of female and male students within the sample was matched to all other study variables, crosstabulated with the sex variable to determine whether or not there were any statistically significant differences between groups. The crosstabulations provided the information for the first profile which shows the distribution of occupational education students in upstate New York on the basis of sex (Table I).

TABLE I

SEX OF STUDENTS BY PROGRAM CLUSTER
(in percentages)

	Program Cluster							
Sex of Students	Agri. Educ.	Dist. Educ.	Health Occ. Educ.	Home Econ. Educ.	Office & Bus. Educ.	Tech. Educ.	Trade Serv. & Ind. Ed.	Total Sample
Male	62	36	3	33	17	77	78	50
Female	38	64	97	67	83	23	22	50

Note: Percentages in all Tables have been rounded to nearest whole number; therefore, column and/or row totals may not equal 100 percent.

OEDS data for upstate New York schools (1978-79) show that 61 percent of occupational education students were female and 39 percent were male. The sample in this study was composed of 50 percent female and 50 percent male subjects, indicating that males are overrepresented in the sample. To determine the significance of this difference a chi-square test for "goodness of fit" was applied to the sample, by program cluster. Two programs, agricultural and home economics education were found to have created statistically significant distortions in the sample. Further analysis of the sample data revealed that oversampling of agricultural mechanization courses, with a largely male student enrollment, had created this distortion. Also, recent changes in OEDS reporting may have caused male students to appear overrepresented in home economics enrollments. Food service occupations which, for a time, were reported as trade, industrial and service education are now reported as home economics education. However, some schools are still reporting some food service occupations in the former

program area. This distortion was corrected in the distribution of courses within program clusters in the sample. Subsamples drawn from enrollments in the other five program clusters are representative of the total student population on the measure of sex of students by program cluster. The proportionate differences between male and female students in the total upstate sample were found to be not statistically signficant thus allowing for comparison between male and female students on an aggregate basis.

Table Ii provides data on classroom performance in occupational and academic education and on standardized achievement tests by sex of students.

TABLE II

SEX OF STUDENTS BY CLASSROOM PERFORMANCE
(in percentages)

Grade Range Equivalent*	Occupational Educ.		Academic Educ.		Standardized Achievement Tests	
	M	F	M	F	M	F
Exceptional	42	58	39	61	56	44
Above Average	47	53	47	53	57	43
Average	53	47	50	50	48	52
Below Average	55	45	64	36	54	46

*See p. 10-11 for explanation of Grade Range Equivalent

Is student gender related to student performance? A look at the sample data indicates that the answer is "yes." Male students performed less well in academic than in occupational courses while female students performed better in academic than in occupational courses.

On the standardized achievement test indicator of school performance, a different picture was evident. Higher percentages of male than female students were "below average," "above average" and also "exceptional." Overall, in achievement test performance, male students received higher test scores than did female students.

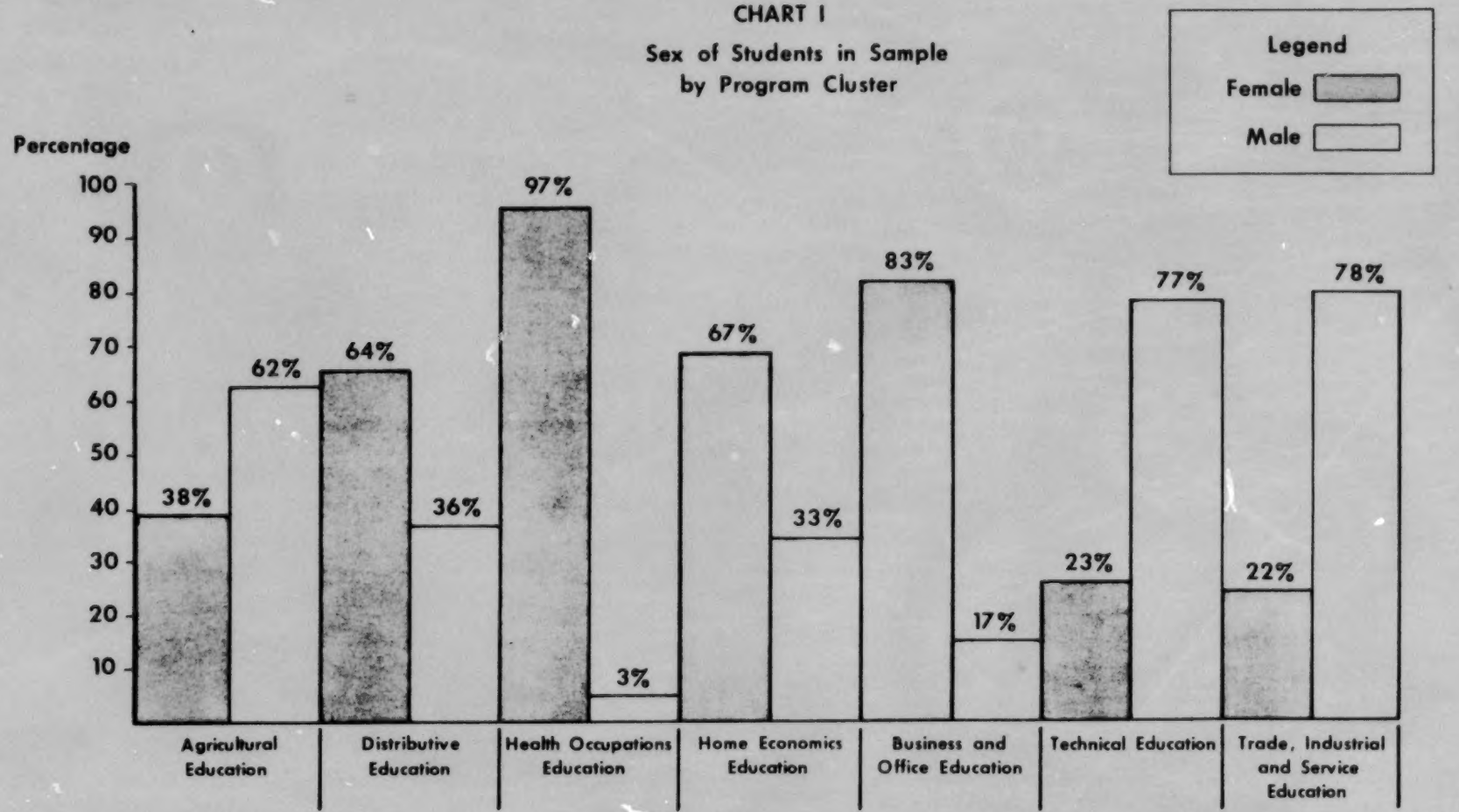
Chi-square statistical tests were applied to the three performance variables, with each showing significant differences at the .05 level. Thus, we can conclude that the same data indicate important differences between male and female students in the school performance ratings selected for study.

Eleven percent of the upstate student sample were economically or educationally disadvantaged. Of this group, 53 percent were female. Two percent of all students in the sample were handicapped, 67 percent of whom were male.

Program data on sex of students are shown in Chart I, which provides information on the distribution of the study sample among the seven program clusters. It should be noted that study data were not compared to enrollment data for previous years and cannot be construed to have implications for progress or lack of progress in terms of removing sex stereotyping in occupational education courses.

CHART I

Sex of Students in Sample by Program Cluster



Profile 2 - Ethnic Origin. Ethnicity carries with it cultural implications of concern to educators. Problems involving language barriers and equal access are among those that occupational educators are working to solve. A profile of the ethnicity of students in occupational education can provide information useful in answering questions surrounding these issues.

The distribution of the upstate New York sample of secondary occupational education students by ethnicity was statistically representative of the total population. Table III shows ethnicity by program cluster.

TABLE III

ETHNIC ORIGIN OF STUDENT SAMPLE
BY PROGRAM CLUSTER
(in percentages)

Ethnic Origin	Agri. Educ.	Dist. Educ.	Health Occ. Educ.	Home Econ. Educ.	Office & Bus. Educ.	Tech. Educ.	Trade, Serv. & Ind. Ed.
American Indian	12	15	3	3	12	9	46
Black	1	14	10	15	17	17	27
Asian or Oriental	0	9	18	9	9	27	27
Hispanic	5	12	5	10	15	18	35
White Not Hispanic	12	7	10	10	18	9	36

Note: Cumulative percentage totals for Tables III through VI and VIII through XIV are presented across rows, but not by columns.

Asians, American Indians and Hispanics constituted two percent of the upstate sample. While this is representative of the upstate population, cell "n's" were rather small. American Indian students tend to be concentrated in trade, industrial and service education (46 percent). Black students in the sample were spread across all of the programs except agricultural education (one percent). The largest concentrations of black students were in office and business education (17 percent), technical education (17 percent), and trade, service and industrial education (27 percent). White students tended to be concentrated in three programs: agricultural education (12 percent), office and business education (18 percent), and trade, service and industrial education (36 percent). Two programs, agricultural education and technical education, had noticeable differences in the percentages of black students and white students.

School performance by ethnic group, using occupational education grades, academic grades and standardized achievement test scores as indicators, is displayed in Tables IV, V and VI.

TABLE IV

PERFORMANCE IN OCCUPATIONAL EDUCATION
BY ETHNIC ORIGIN OF SAMPLE
(in percentages)

Ethnic Origin	Except.	Above Aver.	Aver.	Below Aver.
American Indian	6	30	52	12
Black	4	23	51	22
Asian or Oriental	25	33	42	0
Hispanic	7	29	52	12
White not Hispanic	10	34	45	11

Table IV shows data on occupational education grades for each ethnic group. Asian students had the highest performance (25 percent "exceptional") and black students had the lowest performance (22 percent "below average") on this measure.

TABLE V

PERFORMANCE IN ACADEMIC EDUCATION
BY ETHNIC ORIGIN OF SAMPLE
(in percentages)

Ethnic Origin	Except.	Above Aver.	Aver.	Below Aver.
American Indian	3	16	55	26
Black	3	16	59	22
Asian or Oriental	0	57	43	0
Hispanic	2	20	52	25
White not Hispanic	5	27	52	16

On the academic performance measure (Table V), within group distribution was similar to that shown in Table IV with the exception of Asian students, 57 percent of whom performed at the "above average" level.

TABLE VI

PERFORMANCE ON STANDARDIZED ACHIEVEMENT TESTS BY ETHNIC ORIGIN OF SAMPLE
(in percentages)

Ethnic Origin	Except.	Above Aver.	Aver.	Below Aver.
American Indian	3	21	55	21
Black	2	14	55	29
Asian or Oriental	0	33	50	17
Hispanic	2	17	46	34
White not Hispanic	6	24	48	22

Again, as with occupational grades and academic grades, on standardized acheievement tests (Table VI), Asian students had the highest performance of any ethnic group.

Overall, there were more similarities than differences between the ethnic groups. Performance in academic courses for all groups was generally consistent with performance on standardized achievement tests. All groups showed higher performance in occupational education grades than in academic grades.

Profile 3 - Disadvantaged and/or Handicapped Students. Disadvantaged and handicapped students have priority needs in gaining equal access to occupational education. As has been noted (p. 15), 11 percent of the upstate sample were reported as disadvantaged and two percent as handicapped. OEDS data show that handicapped students are rather evenly distributed throughout the 13 planning regions, comprising from one to three percent of a region's total occupational education population. However, the percent of students reported as disadvantaged varies widely by occupational planning region, ranging from three percent of one region's total occupational education population to 69 percent of another region's population.

Table VII indicates that disadvantaged students tended to score higher in occupational than in academic education. Academic course grades and achievement test scores were much alike for these students as were those for other groups in the sample. A major difference between disadvantaged students and the total sample was observable in the distribution of performance, with a signficantly larger percentage of disadvantaged students in the "below average" category.

TABLE VII

ANALYSIS OF PERFORMANCE
OF DISADVANTAGED AND HANDICAPPED STUDENTS
(in percentages)

Performance Category	Exceptional			Above Aver.			Average			Below Average		
	Total Sample	Dis.	Hand.	Total Sample	Dis.	Hand.	Total Sample	Dis.	Hand.	Total Sample	Dis.	Hand.
Occ. Educ.	9	7	1	34	24	21	45	46	38	12	23	40
Academic Educ.	5	6	1	25	17	7	53	52	41	17	25	51
Standardized Achieve. Test	6	5	1	22	17	6	49	48	28	23	31	65

NOTE: Cumulative totals, rounded to nearest whole number, equal 100% across rows for each category (i.e., total sample, disadvantaged, handicapped).

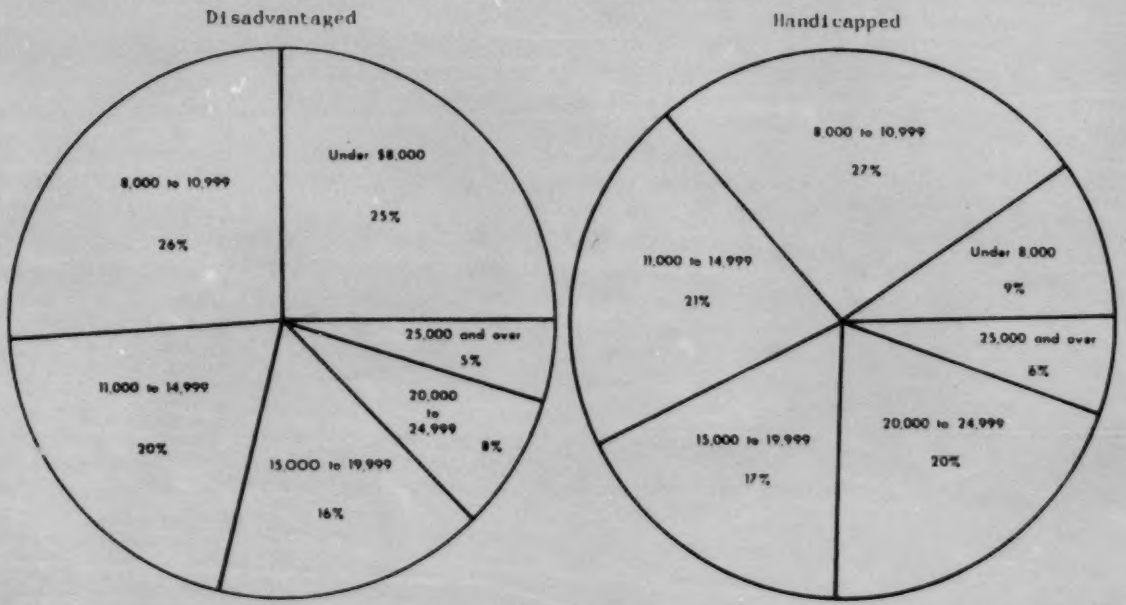
Note: Cumulative totals, rounded to nearest whole number, equal 100 percent across rows for each category (i.e., total sample, disadvantaged, handicapped).

The difference was more evident with the group of handicapped students. Forty, 51 and 65 percent of these students performed at the below average level in occupational and academic education and on standardized achievement tests, respectively.

As stated in the Definitions (p. 6), disadvantaged students include those from low income families. As expected, family income of disadvantaged students was skewed, with 71 percent in the under $15,000 range. However, the handicapped group showed a more normal distribution of family income: 57 percent of family incomes were under $15,000 and 43 percent were $15,000 or over. Chart II illustrates this distribution.

CHART II

Family Income by Disadvantaged and Handicapped

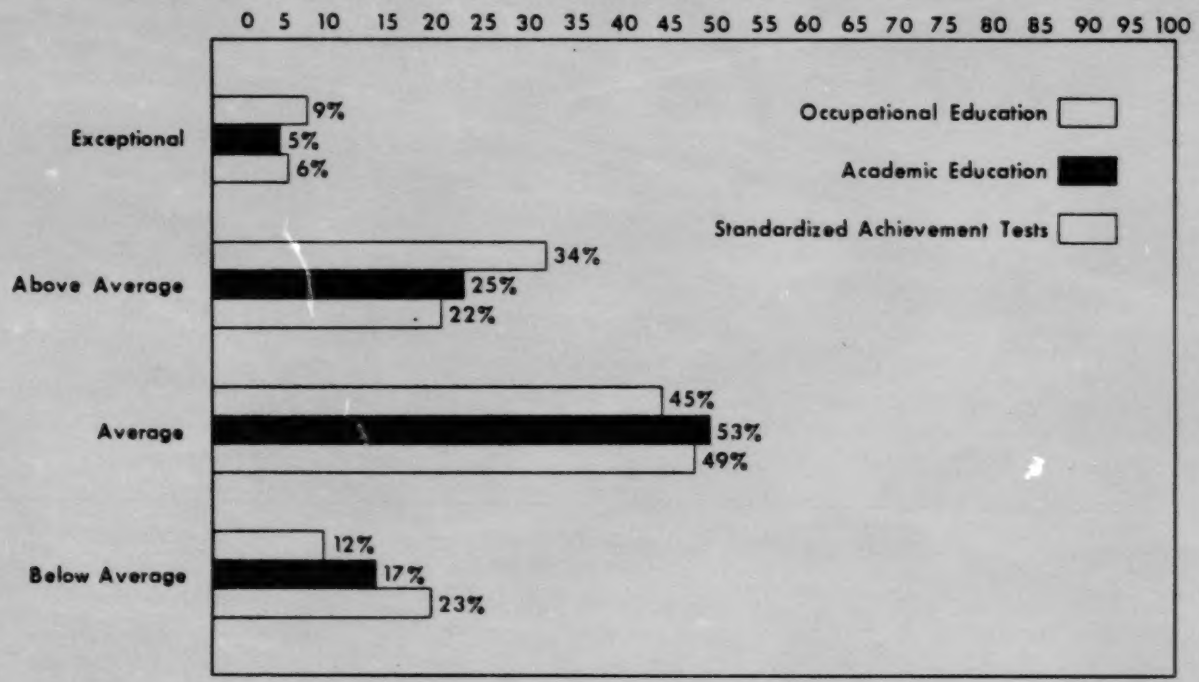


The distribution of disadvantaged and handicapped occupational education students, by ethnicity, in upstate New York can be analyzed only for black students and white students because of small numbers in the remaining ethnic groups. Fifty-two percent of disadvantaged students were black and 45 percent were white, while 94 percent of handicapped students were white and five percent were black. In comparing the study sample with the total population, it appears that the study sample reflects underrepresentation of black students in the handicapped population and overrepresentation of this group in the disadvantaged population.

Profile 4 - School Performance. As stated in the chapter on Design and Methodology, and as shown in Chart III, student performance levels for the sample were equalized for rank order comparison purposes.

CHART III

COMPARISON OF STUDENT PERFORMANCE
IN OCCUPATIONAL AND ACADEMIC COURSES
AND ON STANDARDIZED ACHIEVEMENT
TESTS



Analysis of the data indicated that 43 percent of those students who performed at the "exceptional" level in occupational education courses were "average" in their academic courses. Of those who were "above average" in occupational education, three percent were "exceptional" in their academic courses. The data imply that occupational education students who are very successful in occupational education are somewhat less successful in academic education. However, a large portion (78 percent) of those students who are successful ("average," "above average" or "exceptional") in occupational education are also successful in academic education.

The 22 percent who were either "below average" in occupational grades or "below average" in academic grades also present some interesting contrasts. Twelve percent of the entire sample were "below average" in occupational education grades. Of that group, 43 percent were "average," or above, in academic education. Seventeen percent of the entire sample were "below average" in academic education grades. Of that group, 61 percent were "average," or above, in occupational education. Seven percent of the entire sample were "below average" in both occupational and academic education.

Analysis of performance data shows success in academic courses to be a strong indicator of success in occupational education. On the other hand, being "below average" in academic courses is not always an indicator of failure in occupational education, since 61 percent of the academically "below average" group in the sample succeeded in occupational education. Three percent of this academically "below average" group were "exceptional," 16 percent were "above average" and 42 percent were "average" in their occupational education courses. It should be noted, again, that 78 percent of the sample students were successful in both occupational and academic education.

For the total sample, both occupational grades and achievement test scores were available on 4,113 students. Fifty-nine percent of those whose occupational grades were "exceptional" were "above average" or "exceptional" on achievement test scores. When this group is viewed using achievement test scores as an indicator of success in occupational education, only two percent of those who were "exceptional" on achievement test scores were "below average" in their occupational education grades. However, 77 percent of those who were "below average" on their achievement test scores were "average" or above in their occupational education grades. As with academic grades, high achievement test scores are a good indicator of success in occupational education, but they are not a good indicator of failure in these courses. Study of the predictive validity of these achievement measures is needed before any such assumption can be made.

Seventy percent of those students who were "average" in occupational education were also "average" in academic courses. Only one percent of the occupational education "average" group was below average in academic courses. Fifty-eight percent of those who were "average" in academic courses were "above average" or "exceptional" in occupational grades. Looking at occupational grades and achievement test scores reveals similar relationships.

Clearly, the data from this sample indicate that students in occupational education in upstate New York tend to do better in occupational education than in academic education. Furthermore, students who do well in academic courses will most often perform at the same level or higher in occupational education. There is an implication in these data that assisting students in improving academic performance will lead to improved performance in occupational education. While that is a question for future study, it would seem that the attainment of basic skills in reading, writing and mathematics are important to occupational education students. In any event, it appears that occupational education is providing an important educational service to this group of students. For some of them, occupational education is the only schooling in which they are successful. Some students in the sample group have made a choice which is an important supplement to academic education.

Socioeconomic Environment

Profile 5 - Socioeconomic Status. Earlier in this report the rationale for including socioeconomic variables in the study was discussed (p. 4). Three socioeconomic variables were used to determine the extent of the relationship of socioeconomic status to school performance. The variables were family income, living arrangement, and number of siblings, and were self-reported on the student questionnaire.

Family Income. In previous studies, school performance, particularly in academic grades and standardized achievement test scores, was found to be related to family income. Information was available from 4,292 students on both occupational education grades and family income. The distribution of family income is found in Chart IV.

CHART IV

STUDENT SAMPLE BY FAMILY INCOME
(in percentages)

Under $8,000	8,000 to 10,999	11,000 to 14,999	15,000 to 19,999	20,000 to 24,999	25,000 and Over
12	19	20	21	16	12

Forty-nine percent of the sample group were in families with annual incomes of over $15,000. Eleven percent of the sample were reported as economically disadvantaged. Income data indicated that 12 percent of the students were from families with less than $8,000 in annual income which is consistent with OEDS data on disadvantaged students. It is also interesting to note that 12 percent were from families with incomes above $25,000. Based on data in Chart IV and the material cited in the literature review it seems reasonable to suggest that occupational education students come from families that are normally distributed in terms of income. Certainly these data do not support the idea that occupational education students are exclusively from low income families.

Based on the literature review of socioeconomic status, it was expected that family income would be associated with school performance (high income correlated with high performance and low income correlated with low performance). Tables VIII, IX and X display the crosstabulation of income by occupational education grades, academic education grades, and standardized achievement test scores.

In testing to determine the strength of the relationship between family income and school performance, it was found that:

1. Occupational education grades appear to vary independently of family income.

2. Academic education grades seem to be slightly related to family income. In other words, students in families having higher incomes tend to perform at a slightly higher level than do students from families with lower incomes.

TABLE VIII

FAMILY INCOME AND OCCUPATIONAL GRADES
(in percentages)

Family Income	Except.	Above Aver.	Aver.	Below Aver.
$25,000 and Over	8	32	48	11
20,000 to 24,999	10	34	43	12
15,000 to 19,999	11	35	44	10
11,000 to 14,999	10	35	46	10
8,000 to 10,999	8	36	42	13
Under $8,000	8	33	46	13

TABLE IX

FAMILY INCOME AND ACADEMIC GRADES
(in percentages)

Family Income	Except.	Above Aver.	Aver.	Below Aver.
$25,000 and Over	5	28	50	17
20,000 to 24,999	5	29	50	16
15,000 to 19,999	5	24	55	15
11,000 to 14,999	6	25	54	15
8,000 to 10,999	3	26	53	19
Under $8,000	4	23	55	18

TABLE X

FAMILY INCOME AND STANDARDIZED ACHIEVEMENT TEST SCORES
(in percentages)

Family Income	Except.	Above Aver.	Aver.	Below Aver.
$25,000 And Over	7	28	47	19
20,000 to 24,999	6	25	48	20
15,000 to 19,999	7	23	49	21
11,000 to 14,999	6	22	50	22
8,000 to 10,999	3	21	49	27
Under $8,000	4	19	49	28

3. There appears to be a moderate to strong relationship between standardized achievement test scores and family income. Students from families of lower incomes do not perform as well on standardized achievement tests as do students from families with higher income.

Living Arrangement. As stated in the Literature Review, data from the Performance Indicators in Education (PIE) study indicate that students living in two-parent families tend to perform with higher scores on reading and mathematics tests than do other students. This behavior should be reflected in the student's overall school performance.

Data on living arrangement and school performance are shown in Tables XI, XII, and XIII. In responding to the questionnaire, students identified themselves as belonging to one of the following groups: (1) students who live with two parents or parent surrogates; (2) students living with one parent (again not necessarily a biological parent but someone the student perceives as a parent); and (3) students who do not live with a parent or parents.

Although the differences between groups with different living arrangements were found to be not statistically significant, the data indicate that occupational education students who live with two parents get somewhat higher occupational education grades, academic grades, and standardized test scores than do students living with one parent or living in some other arrangement. The latter, who may live with relatives or who have some other living arrangements, such as living alone, show slightly better school performance than do students living with one parent.

TABLE XI

LIVING ARRANGEMENT AND OCCUPATIONAL EDUCATION PERFORMANCE
(in percentages)

	Except.	Above Aver.	Aver.	Below Aver.
2-Parent	10	35	44	11
1-Parent	6	31	49	14
Other Arrang.	8-1	33	43	16

TABLE XII

LIVING ARRANGEMENT AND ACADEMIC EDUCATION PERFORMANCE
(in percentages)

	Except.	Above Aver.	Aver.	Below Aver.
2-Parent	5	27	53	16
1-Parent	3	22	54	21
Other Arrang.	5	21	54	20

TABLE XIII

LIVING ARRANGEMENT AND STANDARDIZED ACHIEVEMENT TEST SCORES
(in percentages)

	Except.	Above Aver.	Aver.	Below Aver.
2-Parent	6	23	49	22
1-Parent	4	20	49	27
Other Arrang.	5	19	55	27

Number of Siblings. Students were asked how many brothers and sisters lived in their families. More than 4,000 students provided this information, displayed in Tables XIV, XV and XVI.

TABLE XIV

NUMBER OF SIBLINGS AND OCCUPATIONAL EDUCATION GRADES
(in percentages)

No. of Siblings	Except.	Above Aver.	Aver.	Below Aver.
None	9	35	45	10
1 to 4	10	34	45	12
5 or More	8	34	43	15

TABLE XV

NUMBER OF SIBLINGS AND
ACADEMIC EDUCATION GRADES
(in percentages)

No. of Siblings	Except.	Above Aver.	Aver.	Below Aver.
None	4	28	53	15
1 to 4	5	26	53	16
5 or More	3	21	54	22

TABLE XVI

NUMBER OF SIBLINGS AND STANDARDIZED
ACHIEVEMENT TEST SCORES
(in percentages)

No. of Siblings	Except.	Above Aver.	Aver.	Below Aver.
None	7	25	47	22
1 to 4	6	22	50	22
5 or More	3	21	47	28

Although occupational education grades did vary slightly with the number of siblings, no statistically significant differences were found. However, significant differences were found for these occupational education students in academic grades, showing that students with more siblings performed less well academically than did students with fewer siblings. Even larger and more significant differences were shown in the performance of occupational education students on standardized achievement tests in relation to the number of siblings. Again, more siblings correlated with lower performance. As would be expected, standardized achievement test scores closely approximated academic grades in their relationship to school performance and number of siblings. However, statistical significance was not large and should not be generalized for the study sample.

In summary, the socioeconomic variables selected for the study were examined in all possible combinations. All three socioeconomic variables examined appeared to affect the overall school performance of occupational education students in New York State. High family income is related to higher performance and low family income is related to lower performance; living with two parents is related to higher

performance and living with one parent is related to lower performance; being one of a few siblings is related to higher performance while being one of many siblings is related to lower performance on the measures of academic grades and standardized achievement test scores. Occupational grades show no statistically significant relationships to any of the three variables. Therefore, on the basis of this study, it can be concluded that occupational education grades are not affected by the selected socioeconomic variables while both academic grades and standardized achievement test scores are.

Performance Measures

Profile 6 - Occupational Education Students and Delivery System. One purpose of this study was to determine what differences, if any, occur among groups of students enrolled in the three types of occupational education delivery system: BOCES, LEA's and Big City Districts.

A breakdown of the total upstate sample of 5,949 occupational education students resulted in the following count: 3,220 attend BOCES classes, 1,368 are at LEA's and 1,361 are in Big City Districts. Although the BOCES sample is more than twice as large as that of either of the other two delivery systems, the "n" for each group is large enough to be statistically valid. In this profile, only those data reflecting significant differences between groups are reported.

Age and Delivery System. Table XVII shows that the student body in the BOCES sample is slightly older than the student sample in the other two delivery systems. This finding results from the fact that 94 percent of BOCES students in the sample were 11th and 12th graders; only six percent were in grades nine and ten. Seventeen percent of the LEA student sample were in the ninth and tenth grades and 23 percent of the Big City District sample were ninth and tenth graders. Over 90 percent of the total sample were 16 years of age or older.

TABLE XVII

AGE OF STUDENTS BY DELIVERY SYSTEM
(in percentages)

	Under 15	15	16	17	18	19	Over 19	Total 16 yrs and older
LEA's	*	6	22	38	28	4	*	94
Big City Districts	1	8	22	37	27	4	*	91
BOCES	*	1	17	44	30	6	*	99

* Less than one percent.

Interpretation of data should take into consideration the fact that primarily 11th and 12th graders were sampled. Fifteen and 19 year olds made up nine percent of the total sample. Consequently, groups cannot be compared at the age extremes. It is apparent that these three delivery systems are all contributing substantially to the education of older students.

Sex and Delivery System. The sample was designed to include 50 percent female and 50 percent male students. Distortions in the sample on the sex variable are discussed on page 10. The distortion limits the generalizability of data on the program subgroups of agricultural education and home economics education students on the "sex of students" measure.

Table XVIII shows that of the three delivery systems, BOCES have the highest percentage of female students. For example, only two percent of students in technical education at LEA's were female while 49 percent of BOCES students in this cluster were female. Twenty-six percent of students in technical education courses in the Big City Districts were female.

TABLE XVIII

SEX OF STUDENTS BY PROGRAM CLUSTER AND DELIVERY SYSTEM
(in percentages)

Occupational Cluster	LEA's		Big City Districts		BOCES	
	Female	Male	Female	Male	Female	Male
Agricultural Education	37	63	65	35	36	64
Distributive Education	48	52	60	40	90	10
Health Occupations Education	100	0	95	5	97	3
Home Economics Education	64	36	84	16	65	35
Office And Business Education	80	20	82	18	89	11
Technical Education	2	98	26	74	49	51
Trade, Ind. And Service Education	16	84	18	82	25	75
All Programs	45	55	47	53	53	47

Ethnic Origin and Delivery System. Different delivery systems often draw from populations with different characteristics. Although civil rights legislation mandates equal educational opportunities for all minorities, ethnic groups have cultural differences which affect educational needs and choices. Educational planners need to know the ethnic characteristics of school populations to provide for special needs where they do, in fact, exist. Ethnic characteristics of students in the three delivery systems are found in Table XIX.

TABLE XIX

ETHNIC ORIGIN OF STUDENTS BY DELIVERY SYSTEM
(in percentages)

Delivery System	American Indian	Black	Asian	Hispanic	White Not Hispanic
LEA's	1	9	*	1	89
Big City Districts	1	34	*	2	63
BOCES	1	4	*	1	94
Percentage of Each Ethnic Group in the Total Sample	1	12	*	1	86

*less than one percent

The percentages of American Indians, Asians and Hispanics are evenly distributed among the three delivery systems but the numbers of persons representing these groups are not statistically significant. However, Table XIX shows large differences where black students and white students are concerned. Big City Districts have a disproportionately larger percentage of black students and the LEA's and BOCES have a disproportionately larger percentage of white students than that of the total sample.

To validate the study sample data on the ethnicity variable, BEDS data for the total school population of 10th, 11th and 12th graders in upstate New York were aggregated using matching ethnic groups. Table XX presents data on the total population of public school students in grades 10, 11 and 12 by ethnicity and by delivery system. No significant distortions appear in the sample data.

TABLE XX

ETHNIC ORIGIN OF PUBLIC SCHOOL STUDENTS,
GRADE 10-12 BY DELIVERY SYSTEM
(1978-79 BEDS DATA)
(in percentages)

Delivery System	Amer. Ind.	Black	Asian	Hispanic	White Not Hispanic	Total By Delivery System
LEA's	.2	6.1	.4	1.6	91.5	51.2
Big City Districts*	.6	33.6	.5	4.8	60.3	2.8
BOCES	.2	3.6	.3	1.3	94.4	45.8
All Delivery Systems	.2	5.7	.4	1.5	91.9	100

*Buffalo, Rochester, Syracuse and Yonkers

Disadvantaged or Handicapped Students and Delivery System. Of the BOCES students in the sample, three percent were listed as being handicapped, which is a larger percentage of handicapped students than could have been expected on the basis of the total sample population. Only two percent of the total sample were listed as being handicapped.

At the same time, the BOCES sample of occupational education students included only four percent listed as being disadvantaged, while the Big City Districts had 30 percent of students who were disadvantaged. These percentages can be compared to the total upstate sample, of which 11 percent were economically or educationally disadvantaged.

School Performance by Delivery System. By looking at the grade ranges and achievement test scores in all three delivery systems, differences and similarities in performance can be observed. Table XXI displays grade distributions and achievement test score distribution by delivery system.

At first glance, occupational grades do not appear to be very different between delivery systems. However, some significant differences do exist. These differences can best be observed by co-mingling grade categories. "Below average" is unsatisfactory performance while "average," "above average" and "exceptional" are satisfactory performance. On that basis, 89 percent of the student sample attending BOCES perform satisfactorily, reflecting the largest percentage by delivery system in that category. The smallest percentage in the "exceptional" category also was found at BOCES. However, these data should not be over-generalized since the analysis is based on grade ranges rather than on discrete scores. (An explanation of the grade range grouping is on pp. 10-11.)

Using the same categories for academic grades as were used for occupational grades, the highest percentage of students in the sample performing satisfactorily (85 percent) were in Big City Districts. It is also notable that BOCES, again, had the smallest percentage of grades in the "exceptional" category.

TABLE XXI

DELIVERY SYSTEM AND SCHOOL PERFORMANCE
(in percentages)

	Occup. Grades			Academic Grades			Stand. Achieve. Tests		
	LEA's	Big City Dists.	BOCES	LEA's	Big City Dist.	BOCES	LEA's	Big City Dist.	BOCES
Except.	11	10	8	6	7	2	5	8	4
Above Aver.	30	31	36	29	25	24	25	23	20
Aver.	46	45	45	46	54	57	40	56	50
Below Aver.	13	14	11	19	14	17	31	13	25

On achievement test scores, Big City District students had significantly higher scores than did other groups. Nine percent of the satisfactory group were "exceptional" while only thirteen percent performed unsatisfactorily. Students in the LEA occupational programs had the lowest overall performance on achievement tests with 30 percent in the unsatisfactory range. However, looking only at the "above average" and "exceptional" categories, LEA students had a higher percentage of scores in these ranges (30 percent) than did the BOCES students (24 percent).

In summary, with respect to the analysis of student performance by delivery system, it should be pointed out that the differences between delivery systems were small. General trends can be observed and some significant differences between groups were found. In general, BOCES occupational education students performed slightly better in occupational grades than either the LEA or the Big City District occupational students. In both academic grades and standardized achievement test scores, the LEA students and the Big City District students performed slightly better than did the BOCES students.

Socioeconomic Variables by Delivery System. The socioeconomic data discussed in a previous section (p. 22) were aggregated by delivery system.

TABLE XXII

DELIVERY SYSTEM AND FAMILY INCOME
(in percentages)

	Income Ranges					
Delivery System	Under $8,000	8,000 to 10,999	11,000 to 14,999	15,000 to 19,999	20,000 to 24,999	25,000 and Over
LEA's	11	15	19	22	18	14
Big City Districts	16	21	20	20	14	10
BOCES	11	20	21	21	16	11

Although not illustrated in Table XXII, findings based on the total sample indicated that the category of family income that included the highest percentage of students was the $15,000 to $19,999 range. The category with the highest percentage of Big City District students was the $8,000 to $10,999 income range, while that with the highest percentage of students at BOCES and LEA's was the same category of family income as for the total sample, $15,000 to $19,999. However, the LEA sample income distribution was skewed slightly toward the upper ranges of income. Big City District students were distributed rather evenly around the $15,000 to $19,999 range as in the total sample. Occupational education programs in the Big City District sample appear to have a significantly larger proportion of students from lower income families than do LEA or BOCES occupational education programs.

TABLE XXIII

DELIVERY SYSTEM BY STUDENT LIVING ARRANGEMENT (in percentages)

	Living Arrangement		
Delivery System	2-Parent	1-Parent	Other Arrang.
LEA's	78	19	3
Big City Districts	66	30	5
BOCES	80	14	5

Table XXIII indicates that there is a significantly lower proportion of students in Big City Districts living in two-parent homes, compared to the proportion in other systems. BOCES and LEA student groups are not significantly different from each other in terms of living arrangements although both differ significantly from the Big City District group.

Over 70 percent of students in each delivery system lived with from one to four siblings. The remaining students were evenly distributed both on "delivery system" and "number of siblings" variables. No significant differences between groups were found.

There are differences among students served by each of the delivery systems. Most of these differences are small; in fact, there are more similarities than differences among the student groups. Both geographic characteristics and demographic characteristics seem to be related to the differences that do exist. Although differences are not great, some differences, such as socioeconomic status, have implications for occupational education planners.

Summary of Findings for Socioeconomic, Demographic and School Performance Data

This summary highlights the results of the analysis of socioeconomic, demographic and school performance data. Only those findings showing statistical significance have been reported.

1. Female students in the sample performed at a higher level than did male students in both academic and occupational education course grades.

2. Occupational education students performed better in occupational education than in academic courses.

3. Disadvantaged students in occupational education were more likely to fall into the "average" and "below average" performance categories than were students in the total sample.

4. Disadvantaged students scored higher in their occupational education grades than in academic courses.

5. The school performance of handicapped students in occupational education was much lower for both occupational and academic courses than was that for the total sample.

6. Fifty-two percent of disadvantaged students were black, forty-five percent where white, while the remaining disadvantaged students represented other ethnic groups.

7. Five percent of handicapped students were black and ninety-four percent were white.

8. Success in occupational education tends to be a good indicator of success in academic education; 75% of those students with "exceptional" performance in occupational education grades had "exceptional" or "above average" academic grades.

9. Success in academic education is a good indicator of success in occupational education, although failure in academic education is <u>not</u> a good indicator of failure in occupational education.

10. High achievement test scores are a good indicator of success in occupational education, but low achievement test scores are <u>not</u> <u>necessarily</u> indicative of failure in occupational education.

11. The relationships between family income and student performance as revealed in the study are:

    a) occupational education grades vary independently of family income.
    b) academic grades seem to be slightly related to family income (higher income/higher grades).
    c) there appears to be a moderate to strong relationship between standardized achievement test scores and family income (higher income/higher standardized test scores).

Families with occupational education students are normally distributed in terms of income level. The data do not support the idea that occupational education students are primarily from low income families. Forty-nine percent of the students were from families whose income was between $15,000 and $19,999; 28 percent of the students were from families whose income was between $20,000 and $24,999; and 12 percent of the students were from families whose income was over $25,000. (According to one source, the New York State average income for 1977, two years before this study, was $18,396.)

12. Living arrangement does appear to have some relationship to performance in occupational and academic education courses and on achievement tests. Students in two-parent families perform slightly better than do those in one-parent families. Occupational education grades are less affected by living arrangement than are academic grades or achievement test scores. One item of interest is that students with some "other" living arrangements performed slightly higher than did students in one-parent families.

13. The number of siblings in a family has some relationship to school performance. In general, there is a relationship between higher performance and fewer siblings, yet occupational education grades are less affected by number of siblings than are academic grades or standardized achievement test scores.

In general, socioeconomic factors have little effect on occupational grades but have a statistically significant effect on academic grades or standardized achievement test scores.

Plans After Graduation

The data from the upstate student sample on plans after graduation were self-reported in Part I of the student questionnaire. Students were asked to check all items that were applicable choices for them, with each item being treated as a discrete variable. Each item checked was treated as a "yes" response. The distribution of responses is shown in Table XXIV.

Approximately half of the upstate student sample planned to work full-time after graduation. Forty-three percent of the total sample checked Item I, "work full time in my occupational field," and 13 percent checked Item 3 "... not in my occupational field." Only seven percent indicated they didn't know. The "other" catagory, which provided write-in space for plans, produced little usable data. While there was some overlapping, (e.g., students who checked both "go to a technical school" and "go to a two-year college"), a cummulative 64 percent of the respondents indicated an interest in college or some kind of further training. The data seem to imply that occupational education students have given serious thought to their future goals. Certainly, what actually happens after graduation will be different from these plans and goals as they are modified by reality.

TABLE XXIV

PLANS AFTER GRADUATION BY TOTAL SAMPLE
AND DELIVERY SYSTEM
(in percentages)

		Total Sample	LEA Sample	Big City Sample	BOCES Sample
1.	Work full-time in my occupational field	43	39	36	48
2.	Work full-time not in my occupational field	13	13	14	12
3.	Work part-time in my occupational field	20	16	17	23
4.	Work part-time not in my occupational field	10	12	14	8
5.	Join the Armed Services	10	9	11	11
6.	Enter an apprentice or other training program	11	10	11	11
7.	Go to a technical school	10	11	10	9
8.	Go to a two-year college	27	32	26	25
9.	Go to a four-year college	16	17	32	9
10.	Get married	18	17	17	19
11.	I don't know	7	7	7	6
12.	Other	5	5	4	6

Profile 7 - Plans After Graduation by Delivery System. Some significant differences between groups emerge when looking at "plans after graduation" by delivery system. For example, in the category "work full time in my occupational field", BOCES students were more likely than any other group to indicate that they planned to work in their field of training. Big City District occupational education students were least likely to choose this category.

A second category of significance is in planning for further training or education. Plans for entering apprenticeship training attracted the same percentage of students in all types of delivery system. However, postsecondary education categories revealed some differences. BOCES students were less likely to plan to "go to a technical school," "go to a two-year college," or "go to a four-year college"

than were students in the other delivery systems. Occupational students in Big City District programs were most likely to select "go to a four-year college."

All delivery systems had large percentages of students planning to pursue some kind of further formal education. However, these data would seem to support the point of view that BOCES students focus on going to work more than do the other groups. In addition, some of these students plan to work part-time and go to school full-time, or go to work full-time and go to school part-time.

Profile 8 - Plans After Graduation by Sex of Students. Plans after graduation of male and female students are presented in Table XXV.

TABLE XXV

PLANS AFTER GRADUATION BY SEX OF STUDENTS
(in percentages)

	Male	Female
1. Work full-time in my occupational field	48	52
2. Work full-time not in my occupational field	58	42
3. Work part-time in my occupational field	43	57
4. Work part-time not in my occupational field	48	52
5. Join the Armed Services	74	26
6. Enter an apprentice or other training program	68	32
7. Go to a technical school	65	35
8. Go to a two-year college	43	57
9. Go to a four-year college	50	50
10. Get married	38	62
11. I don't know	52	48
12. Other	44	56

Differences in the plans of male and female students after graduation can be observed in Table XXV. Sixteen percent more male than female students planned to "work full time not in (their) occupational field." On the other hand, 14 percent more female than male students planned to "work part time in (their) occupational field." A large difference exists between male and female students in the category, "join the Armed Services," where 48 percent more male students than female students responded affirmatively. Plans for post-high school education differed for female students and male students on all items except "go to a four-year college." Fifty percent of each group checked this item. Male students were more likely to choose "enter an apprentice program" or "go to a technical school." Female students were more likely to choose "go to a two-year college." Twenty-four percent more female than male students planned to "get married."

Students aged 16, 17 and 18 years comprised more than 90 percent of the total sample, while 15 and 19 year olds made up the remaining nine percent. Some trends are noticeable on this variable. Older students were more likely to select a two-year college than they were other post-high school training or education. Younger students more often selected "go to a four-year college." Older students were also less likely to select "get married" as a plan than were younger students.

Profile 9 - Plans After Graduation and Ethnicity

TABLE XXVI

PLANS AFTER GRADUATION AND ETHNICITY
(in percentages)

	American Indian	Black	Asian or Oriental	Hispanic	White Not Hispanic
1. Work full-time in my occupational field	33	41	33	48	44
2. Work full-time not in my occupational field	18	12	13	14	13
3. Work part-time in my occupational field	18	19	20	12	21
4. Work part-time not in my occupational field	3	11	27	4	10
5. Join the Armed Services	21	14	7	13	10
6. Enter an apprentice or other training program	12	12	0	6	11
7. Go to a technical school	3	10	7	9	10
8. Go to a two-year college	21	26	27	19	28
9. Go to a four-year college	21	35	33	17	13
10. Get married	6	18	7	17	19
11. I don't know	12	5	0	10	7
12. Other	12	4	0	6	6

The numbers of American Indians and Asians in the sample were too small to allow comparison of responses with those of other ethnic groups. Of the remaining three groups, Hispanic students were more likely than were others to indicate they planned to "work full-time in (their) occupational field." Hispanic students were less likely than either black students or white students to plan to "enter an apprentice or other training program." Black students were the group most likely to respond, "join the Armed Services," and also were the group most likely to respond, "go to a four-year college." White students were the least likely to check this latter category. Other differences in the data were small and are not discussed in this report.

The effect of ethnic origin seems to be related to the distribution of students among the three delivery systems. For example, BOCES have a predominately white occupational education population and the Big City Districts have a larger black population than that found in the total sample. This instance parallels the trend of general population characteristics and may not have significance beyond what has already been stated. In all delivery systems, black students more often than white students planned to pursue some kind of postsecondary education.

Profile 10 - Plans After Graduation and Disadvantaged or Handicapped Students.
Plans of handicapped students after graduation were based on responses from a very small group of students, about two percent of the total sample. Disadvantaged students comprised approximately 11 percent of the total sample, providing numbers large enough for interpretation. In both groups, no distinction was made between types of disadvantages (i.e., educational, economic), or nature of the handicapping condition (e g., learning disability). Table XXVII displays plans after graduation for disadvantaged and for handicapped students.

Working full time was a high priority for both disadvantaged and handicapped students. Postsecondary education was also a high priority for disadvantaged students, but was a low priority in the plans of students with handicapping conditions.

BOCES was the only delivery system in which a sizeable sample of handicapped students in occupational education responded to the questions on plans after graduation. For this group, the number of positive responses to "work full-time" was slightly higher than that for the total sample, while the number of responses for plans to go to college was slightly lower than that for the total sample. The number of responses of handicapped students in BOCES to the category, "I don't know" was somewhat higher than that for the total sample. It must be pointed out that these differences are not larger and follow the same general pattern as for students in the total sample.

Data on the group of disadvantaged students produced some differences. The number of positive responses of disadvantaged students in the Big City District schools was slightly lower than those of the total sample in the categories "work full-time ... " and "go to ... college."

Of the three delivery systems, the LEA's had the highest percentage of disadvantaged students planning to go to work and the highest percentage planning to go to college. In both the BOCES and Big City Districts there were more responses to "join the Armed Services", as compared to the total student sample. Perhaps this disadvantaged group saw the Armed Services as a way out. Only further study could answer this question.

TABLE XXVII

PLANS AFTER GRADUATION AND
DISADVANTAGED AND HANDICAPPED STUDENTS
(in percentages)

		Disadvantaged N=654	Handicapped N=116
1.	Work full-time in my occupational field	43	50
2.	Work full-time not in my occupational field	11	10
3.	Work part-time in my occupational field	19	23
4.	Work part-time not in my occupational field	12	9
5.	Join the Armed Services	15	10
6.	Enter an apprentice or other training program	10	6
7.	Go to a technical school	9	5
8.	Go to a two-year college	23	16
9.	Go to a four-year college	27	9
10.	Get married	20	21
11.	I don't know	7	11
12.	Other	5	0

Profile 11 - Plans After Graduation by Program Cluster. Table XXVIII shows the percentage of students indicating their plans after graduation, by program cluster. Plans after graduation were found to vary by program cluster. Some observed differences were:

1. Agricultural education. In the total sample, plans of agricultural education students were not greatly different from those of students in most other programs. However, when viewed by delivery system, it was found that there were significant differences. Agricultural education students in BOCES had the highest percentage of "I don't know" responses (12 percent) and the lowest percentage of "work full-time in my occupational field" responses (37 percent) among the seven program areas. In the LEA's, agricultural education student responses to "work full-time in my occupational field" were higher than the average for the category as a whole (43 percent). Big City District agricultural education students showed large differences in their plans after graduation, although no statistical significance can be inferred because of the relatively small sample.

2. Distributive education. In the total sample, 38 percent of distributive education students checked "plan to go to a two-year college." This was the highest percentage among the programs. Fifty-one percent of BOCES students who were in distributive education courses planned to "work full-time in my occupational field," and 40 percent planned to "go to a two-year college." Distributive education students in the LEA's and Big City Districts were similar to the total sample of students in their responses.

3. Health occupations education. This program produced some interesting differences in the data. The category "work full-time in my occupational field" was a priority for these students in all delivery systems. In the total sample, 52 percent of the students planned to work full-time in their field. Responses to this item by delivery system were: BOCES, 51 percent, LEA's, 48 percent and Big City Districts, 63 percent. Postsecondary education was also a high priority with this group in all delivery systems.

4. Home economics education. This distribution of responses was similar to the distribution of responses in the total sample. However, some differences by delivery system were observable. BOCES students were planning to work full-time (41 percent) or part-time (26 percent) in their occupational field. The percentages of those who planned to work full-time in their occupational field were higher for the LEA's (43 percent) and the Big City Districts (47 percent) than the percentage for BOCES (41 percent). Few students indicated "join the Armed Services" as a choice, while between one-quarter and one-third of students in all systems checked "go to a two-year college." Significant numbers of students at BOCES and in Big City Districts checked "go to a four-year college." Big City Districts had the highest percentage checking "work full-time" and the highest percentage planning to go on to postsecondary education.

5) Office and business education students appear to be somewhat less interested in full-time employment in their field than do most other groups. Thirty-six percent planned to go to a two-year college and 19 percent planned to go to a four-year college. A higher percentage of BOCES students in this program (47 percent), as in most other programs, planned to work full-time in their occupational field and a much smaller percentage planned to go to a four-year college (eight percent). LEA (37 percent) and Big City Districts (33 percent) programs showed a smaller percentage of students planning to work full-time in their occupational field, but a larger percentage planning to go to a two-year or four-year college (LEA's two-year college, 39 percent; four-year college, 19 percent; Big City Districts two year college, 34 percent; four-year college 30 percent).

6) Technical education had the lowest percentage (28 percent) of students planning to work full-time in their field. This program also had the highest percentage planning to go to college (two-year college, 24 percent; four-year college, 45 percent; technical school, 14 percent). BOCES students, again, indicated a higher percentage (45 percent) planning to work full-time in their occupational field but also had a large percentage planning to go to college, (technical school, 20 percent; two-year college, 39 percent; four-year college, 17 percent).

7) Trade, service and industry education students comprised the group whose plans, most likely, were to "go to work full-time." Postsecondary education was a low priority in the plans of students in this program. Differences between delivery systems relative to plans after graduation were small.

Plans after graduation did show one obvious trend across all programs. The number planning to work full-time was in inverse proportion to the number planning to go to college. In other words, a higher percentage of students planning to work full-time was an indication of a lower percentage planning to go to college.

BOCES students in all programs appeared to focus their plans on working full-time; Big City District students appear to focus on postsecondary education after graduation. This finding should not be overgeneralized, since the greatest variance was between programs and not between delivery systems. Also, it should be noted that 50 percent or more of the students in all delivery systems planned to work full time and go to college, although not necessarily at the same time. It is a reasonable conclusion that occupational education students in upstate New York have conscious plans for their lives after graduation. Only seven percent said they didn't know what they wanted to do.

Profile 12 - Plans After Graduation by School Performance. The crosstabulation of plans after graduation and school performance data produced some useful information, with trends apparent on some variables. There was an observable directional progression from "exceptional" to "below average" students in most groups. The differences were often small and were most easily observed by comparing the extremes of performance, that is, "exceptional" and "below average." "Exceptional" students, in general, indicated different plans after graduation than did students who were "below average." The crosstabulations are shown in Table XXIX.

"Exceptional" students in occupational education were similar to students at other performance levels on the variable "plan to work full-time in my occupational field." However, those who were "exceptional" in academic grades and on standardized achievement tests were much less likely to plan to "work full-time in (their) field" than were students at the other three performance levels. "Exceptional" students, in general, were less likely to plan to "work full-time not in (their) occupational field" than were students at the other three levels.

Postsecondary education planning was also different for the "exceptional" group. "Go to a technical school" was the least likely plan to be chosen by these students, with "go to a two-year college" and "go to a four-year college" the most likely choices. Among students who dropped to lower occupational and academic education grade ranges and achievement test scores, there was considerable variance in plans for postsecondary education. Those with "exceptional" occupational education grades were more likely to plan to "go to a two-year college." The group with "exceptional" academic grades and/or achievement test scores were most likely to plan to "go to a four-year college," as could be expected.

The number of "I don't know" responses was lower for the "exceptional" group than for the "below average" group. Only three percent of those students with "exceptional" academic grades said they didn't know what they would do after graduation. This response for the total sample was seven percent. Those with "exceptional" grades apparently had a better idea about their plans after graduation than those at other performance levels.

TABLE XXVIII

PLANS AFTER GRADUATION BY PROGRAM CLUSTER
(in percentages)

	Agriculture Education	Distributive Education	Health Occupations Education	Home Economics Education	Office & Business Education	Technical Education	Trade, Ind. & Service Education
1. Work full-time in my occupational field	37	38	52	41	38	28	49
2. Work full-time not in my occupational field	15	14	6	12	13	12	15
3. Work part-time in my occupational field	19	20	28	24	17	17	20
4. Work part-time not in my occupational field	10	10	6	8	15	15	9
5. Join the Armed Services	12	8	8	9	5	13	14
6. Enter an apprentice or other training program	8	9	6	9	5	10	17
7. Go to a technical school	5	7	5	7	7	14	14
8. Go to a two-year college	25	38	33	26	36	24	20
9. Go to a four-year college	9	16	22	10	19	45	8
10. Get married	14	16	28	22	18	15	17
11. I don't know	11	7	4	11	5	4	6
12. Other	6	4	6	3	7	5	6

TABLE XXIX

PLANS AFTER GRADUATION BY SCHOOL PERFORMANCE
(in percentages)

	Except.			Above Aver.			Average			Below Average		
	Occ. Grades	Acad. Grades	Achiev. Test	Occ. Grades	Acad. Grades	Achiev. Test	Occ. Grades	Acad. Grades	Achiev. Test	Occ. Grades	Acad. Grades	Achiev. Test
1. Work full-time in my occupational field	43	32	32	44	40	41	44	44	43	40	48	42
2. Work full-time not in my occupational field	5	6	6	12	13	13	13	14	14	17	13	14
3. Work part-time in my occupational field	22	24	24	22	23	21	19	19	18	17	17	21
4. Work part-time not in my occupational field	11	15	12	10	12	13	11	10	11	9	10	8
5. Join the Armed Services	8	6	6	9	10	13	10	11	10	10	14	11
6. Enter an apprentice or other training program	7	6	9	11	10	12	11	12	11	10	13	10
7. Go to a technical school	8	7	9	10	10	11	9	9	8	11	12	11
8. Go to a two-year college	33	23	23	28	32	28	27	26	27	21	21	26
9. Go to a four-year college	25	41	38	18	21	23	14	15	16	17	11	9
10. Get married	15	16	18	19	19	20	19	21	18	17	18	20
11. I don't know	4	3	5	5	6	6	7	6	6	9	9	8
12. Other	5	8	7	6	6	7	5	6	6	5	4	4

"Work full-time not in my occupational field" was a plan much more often chosen by "below average" groups of students than by "exceptional" students. When the responses to "work full-time in my occupational field" and "work full-time not in my occupational field" were combined, the "exceptional" group of students were much less likely to plan to work full-time than were students at any other performance level. On the other hand, when the responses to "work part-time in my occupational field" and "work part-time not in my occupational field" were combined, the "exceptional" group was more likely to plan to work part-time than any other group of students.

Planning to go to college was most often chosen by the "exceptional" group, although college also could be a realistic plan for those with "average" or "above average" grades. However, for that group of students with "below average" grades in all three areas (occupational, academic and achievement test scores) of school performance, one wonders how many will be able to achieve that goal.

Profile 13 - Plans After Graduation by Socioeconomic Status. The three socioeconomic variables and plans after graduation are discussed as one profile, with responses displayed in Tables XXX, XXXI and XXXII.

Some small differences were found relative to plans after graduation in the three socioeconomic variables selected for study. Family income data indicate that students in families having a higher income are more certain about their plans than are students in lower income families. Living arrangement data indicate that students living with one parent are less likely to plan to "get married" after graduation than are students either living with both parents or in some other living arrangement. Data on the number of siblings in a family indicates that students living in families with five or more siblings are more likely to plan to "work full-time in (their) occupational field" than are "only children." None of the differences between groups are very large in any of the socioeconomic categories of variables. Socioeconomic data appear to have little, if any, influence on plans after graduation.

Summary of Findings for Plans After Graduation

The following summary restates the principal findings of the analysis of responses to Part I, Student Questionnaire, Plans After Graduation. Only those findings showing statistical significance have been reported.

1. Nearly half of the students sampled planned to work full time after graduation in their field of training (43 percent).

2. Only seven percent of the students indicated that they did not know what they planned to do after graduation.

3. Sixty-four percent (cumulative score) indicated an interest in post-secondary education.

4. In comparing responses by delivery system, BOCES students were the most likely group planning to work full time after graduation. Big City District students were least likely to choose this category.

5. Students in LEA's were most likely to choose the category, "go to a two-year college." Big City District students were most likely to choose "go to a four-year college."

TABLE XXX

PLANS AFTER GRADUATION BY FAMILY INCOME
(In percentages)

	25,000 and Over	20,000 to 24,999	15,000 to 19,999	11,000 to 14,999	8,000 to 10,000	Under 8,000
1. Work full-time in my occupational field	42	41	43	43	41	44
2. Work full-time not in my occupational field	14	15	13	13	14	12
3. Work part-time in my occupational field	17	20	21	20	21	20
4. Work part-time not in my occupational field	10	11	12	9	11	10
5. Join the Armed Services	12	8	12	10	12	12
6. Enter an apprentice or other training program	13	11	11	12	10	14
7. Go to a technical school	12	11	11	10	8	8
8. Go to a two-year college	28	31	27	26	27	28
9. Go to a four-year college	20	17	16	16	13	19
10. Get married	19	18	18	20	20	20
11. I don't know	4	5	5	6	7	8
12. Other	6	6	5	6	5	7

TABLE XXXI

PLANS AFTER GRADUATION BY LIVING ARRANGEMENT
(In percentages)

	2-Parent	1-Parent	Other Arrange.
1. Work full-time in my occupational field	43	40	40
2. Work full-time not in my occupational field	13	13	15
3. Work part-time in my occupational field	20	19	23
4. Work part-time not in my occupational field	11	10	10
5. Join the Armed Services	10	12	12
6. Enter an apprentice or other training program	11	12	10
7. Go to a technical school	10	9	8
8. Go to a two-year college	27	27	24
9. Go to a four-year college	16	21	14
10. Get married	19	15	27
11. I don't know	6	7	6
12. Other	5	6	9

TABLE XXXII

PLANS AFTER GRADUATION BY NUMBER OF SIBLINGS
(In percentages)

	None	1 to 4	5 or more
1. Work full-time in my occupational field	40	42	48
2. Work full-time not in my occupational field	15	13	14
3. Work part-time in my occupational field	21	20	21
4. Work part-time not in my occupational field	11	11	9
5. Join the Armed Services	8	11	12
6. Enter an apprentice or other training program	11	11	12
7. Go to a technical school	10	10	8
8. Go to a two-year college	29	26	25
9. Go to a four-year college	17	17	15
10. Get married	20	18	21
11. I don't know	6	7	6
12. Other	7	5	6

6. Older students were most likely to select "go to a two-year college" while younger students were most likely to select "go to a four-year college."

7. Black students were the ethnic group most likely to select the category, "go to a four-year college."

8. Male students were more likely than female students to plan to "work full time in their occupational field."

9. Male students were more likely than female students to plan to "join the Armed Services."

10. Female students were more likely than male students to plan to "go to a two-year college."

11. Female students were more likely than male students to plan to "get married."

12. Agricultural education students in the BOCES delivery system had the highest percentage (12 percent) of "I don't know" responses.

13. The highest percentage of students planning to "go to a two-year college" (38 percent%) was in distributive education.

14. Health occupations education, among the programs, had the highest percentage of students planning to "work full-time in my occupational field" (52 percent). Over half of them also planned on some postsecondary education (cumulative score, 59 percent).

15. Technical education, among the programs, had the lowest percentage of students planning to "work full-time in (their) occupational field" (28 percent) but had the highest percentage planning on postsecondary education (cumulative score, 85 percent).

16. Trade, service and industry education students were the group, among all programs, most likely to plan to "work full-time" (cumulative score, 63 percent).

17. In general, plans for going to work full-time varied inversely with plans for going to college.

18. In general, BOCES students focused on going to work after graduation while Big City District students focused on postsecondary education.

19. Postsecondary education was a high priority for disadvantaged students, but a low priority for handicapped students.

20. "Exceptional" students were more likely to plan on postsecondary education than to plan to work full time.

21. Students who were "exceptional" in occupational education were more likely to select, as a higher education option, "go to a two-year college."

22. Students who were "exceptional" in academic education were more likely to choose the category, "go to a four-year college."

23. Only three percent of students with "exceptional" academic grades indicate "I don't know" about plans after graduation.

24. Of the "below average" groups, 9-12 percent planned to "go to a four-year college," while 21-26 percent planned to "go to a two-year college."

25. In general, plans after graduation do vary with school performance.

26. Socioeconomic variables had very little effect on plans after graduation.

New York City Sample

High School Graduates and CUNY Enrollment. The New York City Office of Education Statistics was contacted for information on June, 1979 graduates of each of the five high schools in the sample. The data presented in Table XXXIII show the percentage of the total of enrolled students in each of the five high schools, who graduated in June, 1979, and the percentage of the June, 1979 graduates from each of those five high schools, who actually enrolled at a CUNY component college in the fall of 1979.

TABLE XXXIII

PERCENTAGE OF SCHOOL'S ENROLLMENT GRADUATING AND PERCENTAGE OF SCHOOL'S GRADUATES SHOWING AT CUNY

High School	Total Enrollment Graduating	Graduates Showing at CUNY
Clara Barton	90.8	75.0
John Bowne	91.2	68.6
Alfred E. Smith	64.2	33.0
Norman Thomas	90.8	64.9
Eli Whitney	69.2	47.1
Five Schools Combined	84.1	62.2

Data on the combined graduates from the five high schools indicated that 84.1 percent of enrolled students and that 62.2 percent of the graduates did enroll in CUNY in the fall of 1979. Thus, it appears that a large percentage of students in this group selected postsecondary education as an important part of their educational process by enrolling in a postsecondary institution.

High School Gradutes by Sex of Students. Using UAPC data, the student data from five high schools were analyzed to learn the percentage of total graduates who had been enrolled in occupational programs. Table XXXIV presents these data by sex of student.

TABLE XXXIV

PERCENTAGE OF GRADUATES PREVIOUSLY ENROLLED IN OCCUPATIONAL PROGRAMS BY SEX
(in percentages)

High School	Graduates in Occupational Education	Female Graduates	Male Graduates
Clara Barton	91	91	9
John Bowne	82	59	41
Alfred E. Smith	100	0	100
Norman Thomas	100	85	15
Eli Whitney	94	64	36
Five Schools Combined	92	69	31

These data indicate that 92 percent of the total group who graduated were in occupational education. Of the occupational education students graduating, 69 percent were female and 31 percent were male. Since the analysis shows that 91 percent of students at Clara Barton High School (health occupations) are female, that all of the students at Alfred E. Smith's Vocational Technical High School (trade, industrial and service education) are male, and that 85 percent of the students at Norman Thomas High School (business education and marketing) are female, it appears that male and female students in New York City continue to follow traditional sex roles in making career choices.

Ethnic Origin of New York City Students. Data from the State Education Department's central data base were used to show program cluster enrollment by ethnicity in the 1978-79 school year. These data were collected through the Occupational Education Data System (OEDS) and represent only those students reported as occupational education students. Table XXXV presents OEDS ethnic data by program cluster.

TABLE XXXV

NEW YORK CITY OCCUPATIONAL EDUCATION
STUDENTS BY PROGRAM CLUSTER AND BY SEX
(in percentages)

Program Cluster	Sex	Black	White	Other*	All Ethnic Groups
Ag. Ed	M	21	64	15	56
	F	27	53	19	44
	M & F Comb.	24	59	17	100
Dist. Ed.	M	54	13	33	43
	F	46	23	31	57
	M & F Comb.	49	19	32	100
Health Occ.	M	44	21	34	16
	F	55	13	32	84
	M & F Comb.	53	14	33	100
Home Econ.	M	66	28	5	16
	F	52	26	22	84
	M & F Comb.	54	26	19	100
Bus. & Off.	M	39	34	26	30
	F	34	37	29	70
	M & F Comb.	35	37	28	100
Tech. Ed.	M	33	37	30	91
	F	53	21	25	9
	M & F Comb.	35	36	30	100
Trade, Serv. & Indust. Ed.	M	35	29	37	82
	F	52	13	35	18
	M & F Comb.	38	26	36	100
Comb. Total of all students	M	37	32	32	47
	F	39	31	29	53
	M & F Comb.	38	32	30	100

Note: These data include the total occupational education population in New York City. *"Other" includes the following ethnic groups: Hispanic, American Indian and Asian. Asians were 1.4% and American Indians less than 1% of the total occupational education population.

A Delta Research Corporation report on pupil ethnic composition in New York City provides additional information. Using data from this report, comparisons were made between the ethnic population of the five high school noted earlier and the entire New York City ethnic School population. Table XXXV displays data on the ethnic origin of students in all New York City high schools and that of occupatonal education students attending the five high schools.

TABLE XXXVI

A COMPARISON OF THE ETHNIC ORIGIN OF STUDENTS IN FIVE NEW YORK CITY HIGH SCHOOLS WITH THE ETHNIC ORIGIN OF THE TOTAL SECONDARY ENROLLMENT IN NEW YORK CITY
(in percentages)

	American Indian	Asian	Hispanic	Black	White
Ethnic Origin of the Total New York City High School Enrollment	*	3	25	40	32
Clara Barton	*	2	20	79	1
John Bowne	*	7	23	27	43
Alfred E. Smith	0	1	61	36	3
Norman Thomas	0	4	41	50	5
Eli Whitney	*	1	48	40	11
Five Schools Combined	*	4	36	45	16

* less than 1 percent

The Delta Research Corporation report divided the high schools into academic, vocational and alternative groups. Table XXXVII presents data on these three groups.

Of the seven occupational education program areas, only agricultural education had fewer than 50 percent of its students classified as being disadvantaged. Home economics education data indicate 19 percent of its students are handicapped. Table XXXVIII shows the percentage of students in each program cluster classified as being disadvantaged and/or handicapped, and also shows the percentage of disadvantaged and/or handicappped students in the total occupational education population of New York City. Sixty-nine percent of all students in New York City were reported as disadvantaged and three percent were reported as being handicapped. In general, the percentages of students in New York City who are disadvantaged are higher than are those in upstate New York (p. 20).

TABLE XXXVII

A COMPARISON OF THE ETHNIC ORIGIN OF NEW YORK CITY HIGH SCHOOL STUDENTS BY TYPE OF SCHOOL (CITYWIDE DATA FOR ALL SCHOOLS)
(in percentages)

	Academic High School	Vocational High School	Alternative High School	All Schools
American Indian	*	*	0	*
Asian	3	2	3	3
Hispanic	23	35	31	25
Black	39	42	49	40
White	34	21	18	32

*less than 1 percent

Using the data shown in Table XXXVII, it appears that whites have the highest student concentration in the academic high schools, while blacks and Hispanics have the highest student concentration in the vocational and alternative high schools.

Disadvantaged and Handicapped Students. Data on disadvantaged and handicapped students were obtained from OEDS and apply to the total occupational education population in New York City. Table XXXVIII displays these data by program cluster.

TABLE XXXVIII

ENROLLMENT BY PROGRAM CLUSTER OF OCCUPATIONAL EDUCATION STUDENTS IN NEW YORK CITY WHO ARE DISADVANTAGED AND/OR HANDICAPPED
(in percentages)

Program Cluster	Total Enrollment	Disadvantaged	Handicapped
Agricultural Education	2	36	2
Distributive Education	3	78	2
Health Occupations Education	8	66	2
Home Economics Education	2	57	19
Business & Office Education	53	68	1
Technical Education	5	66	3
Trade, Industry & Service Education	27	73	5
All Students Combined	100	69	3

The State Education Department's Basic Educational Data System (BEDS) collects aggregate data on the performance of students by class. Data on student performance, as reported in BEDS, is displayed in Table XXXIX, by program cluster, for the total occupational education enrollment of New York City.

TABLE XXXIX

OCCUPATIONAL EDUCATION STUDENT PERFORMANCE
BY THE SEVEN OCCUPATIONAL EDUCATION
PROGRAM AREAS
(in percentages)

Program Cluster	Advanced Placement	Honors	Above Average	Average	Below Average
Agricultural Education	0	0	12	55	12
Distributive Education	0	0	2	63	15
Health Occupations Education	0	*	4	66	9
Home Economics Education	0	0	2	58	19
Office & Business Education	8	1	2	65	18
Technical Education	0	0	31	63	4
Trade, Industry & Service Education	0	*	12	74	9
All Program Clusters Combined	*	*	6	67	15

*less than 1 percent

Student Performance. Less than one percent of the classes enrolled in the seven occupational clusters had pupils whose occupational education performance was in the "advanced placement" category. Office and business education was the only program cluster with students in this group.

School performance data for the five high schools were analyzed, using data provided by UAPC, and compared with the performance of non-occupational students in those same schools. These data are presented in Table XL.

TABLE XL

SCHOOL PERFORMANCE OF OCCUPATIONAL AND
NON-OCCUPATIONAL GRADUATES
OF FIVE NEW YORK CITY HIGH SCHOOLS
(in percentages)

High School	Grade Average									
	Occupational Education Graduates					Non-Occupational Education Graduates				
	65	66-75	76-85	86-95	95	65	66-75	76-85	86-95	95
Clara Barton	2	64	30	4	0	0	47	44	9	0
John Bowne	10	48	31	11	0	3	26	47	21	*
Alfred E. Smith	10	53	33	3	0			NONE		
Norman Thomas	4	36	50	10	0			NONE		
Eli Whitney	16	39	37	8	0	11	25	36	29	0
All Schools Combined	8	46	38	8	0	5	30	45	19	4

*less than 1 percent

It appears from the data that, as a group, non-occupational students performed at a higher level than did occupational students in these schools. Tables XLI and XLII provide comparisons of the performance of occupational and non-occupational female and male students in five high schools. Again, non-occupational education students performed better.

TABLE XLI

A COMPARISON OF THE PERFORMANCE OF OCCUPATIONAL AND NON-OCCUPATIONAL MALE STUDENTS IN FIVE HIGH SCHOOLS
(in percentages)

High School	Grade Average									
	Occupational Education Graduates					Non-Occupational Education Graduates				
	65	66-75	76-85	86-95	95	65	66-75	76-85	86-95	95
Clara Barton	0	67	28	5	0	0	45	27	27	0
John Bowne	12	52	28	8	0	5	34	43	18	0
Alfred E. Smith	10	54	33	3	0			NONE		
Norman Thomas	10	44	39	7	0			NONE		
Eli Whitney	25	39	32	4	0	1	0	0	0	0
All Schools Combined	13	47	32	5	0	5	35	41	19	0

TABLE XLII

A COMPARISON OF THE PERFORMANCE OF OCCUPATIONAL AND NON-OCCUPATIONAL FEMALE STUDENTS IN FIVE HIGH SCHOOLS
(in percentages)

High School	Grade Average									
	Occupational Education Graduates					Non-Occupational Education Graduates				
	65	66-75	76-85	86-95	95	65	66-75	76-85	86-95	95
Clara Barton	2	64	30	4	0	0	47	50	3	0
John Bowne	8	44	34	14	0	0	11	55	32	2
Alfred E. Smith	0	0	0	0	0			NONE		
Norman Thomas	3	34	52	10	0			NONE		
Eli Whitney	11	39	40	11	0	7	26	37	30	*
All Schools Combined	5	44	41	10	0	2	33	46	18	0

*less than 1 percent

Overall, female students performed slightly better than did male students in both occupational and non-occupational education.

Summary of Findings, New York City Schools

The findings reported in this section are based on data for which reliability has not been established. It is assumed that further investigation, with data collected on an individual basis, would provide more valid findings. In general, findings are as follows:

1. New York City occupational education students seem to perceive post-secondary education as important to them to pursue (Data source - New York City Office of Educational Statistics).

2. Sex role stereotyped course enrollment appears to exist in the occupational education program (Data source - UAPC).

3. Black students constitute a larger percentage of occupational education enrollment than do white students (Data source - OEDS). (The Delta Research Corporation data indicate that both black and Hispanic students are a larger percentage of occupational education enrollment than are whites.)

4. More white students choose to attend academic schools than choose occupational or alternative schools (Data source - Delta Research Corporation Report).

5. A large percentage (69 percent) of occupational education students in New York City high schools are disadvantaged (Data source - OEDS).

6. Female students tend to perform at a higher level than do male students in both occupational and non-occupational education (Data source - UAPC).

7. In the three high schools with both occupational and non-occupational students, graduates designated as non-occupational performed at a higher level than did those designated as occupational students. (Data source - UAPC).

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Conclusions. The study findings show that there are more similarities than differences among and between groups of students on the variables examined. However, some differences were evident in the upstate sample.

Enrollment in occupational courses by sex of student followed a rigidly stereotyped pattern, with 97 percent of students in health occupations education and 83 percent of students in the office and business cluster being female. Agricultural, technical, and trade, industry and service education showed 62, 77 and 78 percent male student enrollments, respectively. The latter cluster includes the field of cosmetology, which reflected an enrollment composed primarily of female students.

The effect of ethnicity was evident. Although numbers were small, nearly one-half of the American Indian students in the sample were enrolled in the trade, industry and service cluster. Higher percentages of Asian or Oriental students than of the other ethnic groups were enrolled in the health occupations (18 percent) and technical education (27 percent) clusters. With the exception of agricultural education (one percent), black students were spread across all program clusters. White students were underrepresented in the sample in distributive education (seven percent) and in technical education (nine percent). Black students were under-represented in the handicapped group.

At least three-fourths of all the students in all groups performed at average levels or above in occupational and academic courses. Black students and Hispanic students did not reach the average level in standardized testing, although white students did. Female students out-performed male students in occupational and academic grades while male students performed slightly better on standardized tests than did female students.

Students in the sample were evenly distributed on the family income variable, with 51 percent above and 49 percent below the $15,000 income level. Occupational and academic grades varied independently of family income, while performance on standardized achievement tests showed a relationship to family income, with low performance being equated to low income level.

The majority of occupational education students in LEA's (55 percent) and Big City Districts (53 percent) are male, while the reverse is true in BOCES enrollments (male, 46 percent).

In regard to school performance by delivery system, BOCES students performed slightly better than did other groups in occupational education courses, while students in Big City Districts performed better in academic courses and on standardized tests than did other students. However, the differences were small and should not be over generalized.

Analysis of the performance data showed success in academic courses to be an indicator of success in occupational education. However, 61 percent of the academically "below average" group performed at the "average" level or above in occupational courses. Similar relationships were found in comparing occupational education grades and standardized achievement test score data, with achievement test scores being a good indicator of success in occupational education, but not a good indicator of failure.

The study showed that family related variables (for example, number of siblings, or living arrangement) are related to school performance in academic courses and achievement tests, but not in occupational education. Students in two-parent families and with fewer than five siblings performed better on two of the three performance variables studied than did the students in other groups.

A major portion of the study was devoted to the examination of students' plans after graduation, computed for all students and for each student group. Although large numbers of students in all groups indicated interest in working either full-time or part-time in their occupational field, students in BOCES were most likely to choose this option but least likely to choose college and/or technical school options. Occupational students in Big City Districts were the group most likely to indicate higher education as a goal. As a group, occupational education students appear to have made plans for after graduation.

Female students were more likely than male students to plan to go to work in their occupational field, either full-time or part-time. Black students were more likely than other ethnic groups to repond to both "join the Armed Services" and "go to a four-year college."

Plans after graduation varied on the measures of occupational cluster, delivery system, sex of students, ethnicity and school performance.

Recommendations. The sex stereotyped occupational education enrollment and student aspiration patterns revealed in this study (based on 1978-79 data) is a matter of concern to local and State educators. Other studies have shown that this rigidity is, in part, an outcome of the specific (as opposed to general) nature of training for traditionally female jobs. It is recommended that the curricula for health occupations and home economics education be revised to provide a basis for post-training career development for graduates of these programs. (Some aspects of the recently revised curriculum in office and business education address this issue.)

The relationship of ethnicity, sex of student, family income, and type of delivery system to student performance on standardized achievement tests may indicate the tests inappropriateness for some groups. It is recommended that the more commonly used standardized achievement tests be examined for cultural and sex bias and for appropriateness in testing students living in rural areas.

The found relationship between acceptable student performance in academic courses and level of performance in occupational education shows a need for training in basic skills for occupational education students.

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APPENDIX I
TELEPHONE QUESTIONNAIRE

BUREAU OF OCCUPATIONAL EDUCATION RESEARCH
NEW YORK STATE EDUCATION DEPARTMENT
A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS OF SECONDARY
PUBLIC SCHOOL OCCUPATIONAL EDUCATION STUDENTS IN NEW YORK STATE

Telephone Questionnaire

THIS COPY OF THE TELEPHONE SURVEY IS FOR YOUR INFORMATION ONLY AND SHOULD NOT BE RETURNED.

Occupational education planners are concerned with making effective decisions. The State Education Department, in an effort to provide information on occupational education students, needs to know what kind of data is available on individual students. (From BOCES this might be from feeder school transcripts)

Do you have individual student records on the following variables?

Disadvantaged	(academic and/or economic disadvantagement that requires special services assistance or programs in order for the student to successfully complete his/her occupational program)
Handicapped	(other than academic or economic disadvantagement, who require special services, assistance or a modified program to be provided in order for students to successfully complete the program. (Students should be reported here only if the committee on the handicapped has identified them as having one of the following handicapping conditions: mental retardation, hearing impairments or deafness, speech impairments, visual impairments or blindness, serious emotional disturbances, orthopedic impairments, or other serious health impairments)
Sex	
Race	(Ethnic Background)
Grade Level	

BUREAU OF OCCUPATIONAL EDUCATION RESEARCH
NEW YORK STATE EDUCATION DEPARTMENT
A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS OF SECONDARY PUBLIC SCHOOL OCCUPATIONAL EDUCATION STUDENTS IN NEW YORK STATE

Telephone Questionnaire

Name of School_____ Person making call:_____

School ID#_____ Time on phone:_____

Phone #_____ Time of day & date:_____

Person spoken to:_____

Occupational education planners are concerned with making effective decisions. The State Education Department, in an effort to provide information on occupational education students, needs to know what kind of data is available on individual students. (From BOCES this might be from feeder school transcripts)

Do you have individual student records on the following variables?

Disadvantaged (academic and/or economic disadvantagement that requires special services assistance or programs in order for the student to successfully complete his/her occupational program)

Handicapped (other than academic or economic disadvantagment, who require special services, assistance or a modified program to be provided in order for students to successfully complete the program. (Students should be reported here only of the committee on the handicapped has identified them as having one of the following handicapping conditions: mental retardation, hearing impairments or deafness, speech impairments, visual impairments or blindness, serious emotional disturbances, orthopedic impairments, or other serious health impairments)

Sex

Race (Ethnic Background)

Grade Level

Program Area	(such as: Agriculture, Distributive Education, Health Occupations, Home Economics, Business and Office Education, Technical Education & Industrial Education)
Scholastic Achievement	(standardized test such as: PEP, MAT, STEP, ITED, SAT, WRAT, Teacher Grades or other)
Scholastic Aptitude	(standardized tests such as: ASVAB, DAT, GATB, NATB, PMS, IQ Tests or other)
Attitude	(such as anecdotal records or standardized test such as CMI)
Basic Skills Achievement	(standardized test)
Occupational Interest	(standardized test such as: Kuder, Strong-Campbell II, Self-Directed Search)
Income Level of Parents	(how determined)
Personal Plans After Family wage Earner(s)	(how recent)
Personal Plans After Graduation	(such as: pre-graduation survey, guidance records, followup study or other)
Attendance	
	Tardiness
Discipline	(how kept)
Prep Course	(such as: Industrial Arts, Home Economics or Business Education - grades 7-10)

Can this information be made available to the State Education Department:

With whom would we work in your school to get these data:

_____

APPENDIX II
AGENCIES IN THE SAMPLE

APPENDIX II

Agencies Included in Sample

BOCES	
Cayuga-Onondaga	Cayuga County Area Occupational Center 234 South Street Road Auburn, NY 13021
Cortland-Madison	McEvoy Educational Center Clinton Avenue Extension Cortland, NY 13045
Erie #1	Harkness Center 99 Aero Drive Cheektowaga, NY 14225
Erie #2	East Occupational Education Center Center Street East Aurora, NY 14052
Nassau	County Center for Occupational Education 196 Prospect Avenue Westbury, NY 11590
Onondaga-Madison	Lakeside Occupational Center 310 Lakeside Road Syracuse, NY 13209
Oswego	Oswego Area Occupational Center Box 488 Mexico, NY 13114
St. Lawrence-Lewis	Southwest Center Route 58 - Fowler Road Balmat, NY 13609

St. Lawrence-Lewis	Northwest Center Park Street Ogdensburg, NY 13669
St. Lawrence-Lewis	Seaway Center Box 222 Norwood, NY 13668
Tompkins-Seneca-Tioga	Tompkins-Seneca Occupational Center 555 Warren Road Ithaca, NY 14850

BIG CITY DISTRICTS

Buffalo	712 City Hall Buffalo, NY 14202
Syracuse	409 W. Genesee St. Syracuse, NY 13202

LEA's

Levittown	Center Lane Levittown, NY 11756
Niagara Falls	607 Walnut Ave. Niagara Falls, NY 14302
North Syracuse	5355 West Taft Road North Syracuse, NY 13212
Potsdam	29 Leroy St. Potsdam, NY 13676
Sewanhaka	555 Ridge Rd. Elmont, NY 11003
Utica	13 Elizabeth St. Utica, NY 13501

APPENDIX III
STUDENT QUESTIONNAIRE

Bureau of Occupational Education Research
New York State Research Coordinating Unit
New York State Education Department
Room 468 EBA
Albany, New York 12234

A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS OF SECONDARY PUBLIC SCHOOL OCCUPATIONAL EDUCATION STUDENTS IN NEW YORK STATE

Student Questionnaire

Instruction

1. When all of the information is gathered, your name will be removed from the questionnaire to ensure your complete privacy. This information will be used for statistical purposes only. It is important, however, that you put your name on the questionnaire.

2. Please carefully note whether you should check one answer or all that apply on each question.

3. Please answer all questions as accurately as you can. If you are not sure, guess as close as you can.

4. If you have questions, feel free to ask the person who is administering the questionnaire for help.

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of Occupational Education Research
Albany, New York 12234

A Study of Personal Background Characteristics of Secondary Public School Occupational Education Students in New York State

Part I

You have been selected as part of a sample of secondary school students who participate in occupational education programs. We are requesting the data listed below in order to obtain valuable information on the types of students currently participating in occupational education programs. All information will be confidential and your name will be removed prior to submitting the forms for processing. Thank you for your help.

1. Please indicate your plans after graduation by checking the boxes next to the most applicable choice(s) listed below:

   I plan to (check all that apply)

   Work full-time in my occupational field (01)

   Work full-time, not in my occupational field (02)

   Work part-time in my occupational field (03)

   Work part-time, not in my occupational field (04)

   Join the Armed Services (05)

   Enter an apprentice or other training program (06)

   Go to a technical school (07)

   Go to a two-year college (08)

   Go to a four-year college (09)

   Get married (10)

   I don't know (11)

   Other (please explain)_____ (12)

2. Please indicate you age in the box at the right

3. Indicate whether you live with both parents, one parent only or some other type of living arrangement: (check one, only)

   Live with both parents (01)

   With with one parent only (02)

   Other type of living arrangement: (please specify)_____ (03)

4. Indicate the number of brothers and sisters that are currently living with you: (check one, only)

   None (01)

   1-4 (02)

   5 or more (03)

(SEE OTHER SIDE)

Student name _____

(To ensure confidentiality your name will be removed after you return this form)

5. Check the box that most closely corresponds to the combined income of your family (check one, only)

Under $8,000 per year (approx. $150 per week or less) (1)

$8,000-$10,999 per year (approx. $155-$210 per week) (2)

$11,000-$14,999 per year (approx. $215-$290 per week) (3)

$14,000-$19,999 per year (approx. $295-$385 per week) (4)

$20,000-$24,999 per year (approx. $390-$485 per week) (5)

$25,000 or over per year (approx. $490 or more per week) (6)

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of Occupational Education Research
Albany, New York 12234

A Study of Personal Background Characteristics of Secondary Public School Occupational Education Students in New York State

Part II

School Name _____ School Code _____ (office use only)

1. Student's grade level: (check one, only)
   - Grade 9 (1)
   - 10 (2)
   - 11 (3)
   - 12 (4)

2. Sex of student:
   - Male (1)
   - Female (2)

3. Please indicate the racial/ethnic group the student is identified with: (check one, only)
   - American Indian or Alaskan Native (1)
   - Black, not Hispanic (2)
   - Asian or Pacific Islander (Oriental) (3)
   - Hispanic (4)
   - White, not Hispanic (5)

4. Indicate the student's primary occupational program cluster: (check one, only)
   - Agriculture Education (1)
   - Distributive Education (2)
   - Health Occupations Education (3)
   - Home Economics Education (4)
   - Business and Office Education (5)
   - Technical Education (6)
   - Trade, Technical (7)

5. Specify the individual occupational course(s) that the student is currently enrolled in within the cluster: (BEDS CODE)

   _____ _____

6. Indicate if this student has been identified as disadvantaged or handicapped: (see instructions for definitions)
   - Disadvantaged (1)
   - Handicapped (2)

(SEE OTHER SIDE)

7. Indicate the student's performance, in terms of teacher grades in his/her occupational education courses:

   Exceptional performance (honors) (1)

   Above average (2)

   Average (3)

   Below average (4)

8. Indicate the student's performance, in terms of teacher grades, in his/her academic courses

   Exception performance (honors) (1)

   Above average (2)

   Average (3)

   Below average (4)

9. Indicate the student's performance on standardized achievement tests taken, if any: (use latest tests taken)

   Exception performance (honors) (1)

   Above average (2)

   Average (3)

   Below average (4)

   Check here if no tests taken

A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS
OF SECONDARY PUBLIC SCHOOL OCCUPATIONAL
EDUCATION STUDENTS IN NEW YORK STATE

Instructions for Student Unit Record
Data Collection Instrument

It is important that all questions be answered if possible. When this questionnaire is completed the student questionnaire shuld be stapled to it and the student's name removed. This will ensure the privacy of the student. Thank you for your help.

Question by Question

1. Check one answer only.
2. Check one answer only.
3. Check one answer only. This question is important to the study. Please be as accurate as possible.
4. Check one answer only. Program cluster is the general program area as designated by the State Education Department.
5. Each student is enrolled in a specific course of instruction within a program cluster (Example: the program cluster might be Agriculture; the course of instructions might be Horticuluture I which is a course within Agriculture). If known, please fill in the 4-digit BEDS course code.
6. Using the following definitions, check one or both, if they apply (Leave unanswered if student is not in either category):

DISADVANTAGED is defined as: academic and/or economic disadvantagement that requires special services assistance or programs in order for the student to successfully complete his/her occupational program (students participating in the free lunch program would be an example of economic disadvantagement).

HANDICAPPED is defined as: other than academic or economic disadvantagement, who require special services, assistance or a modified program to be provided in order for students to successfully complete the program. (Students should be reported here only if the committee on the handicapped has

identified them as having one of the following handicapping conditions: mental retardation, hearing impairments or deafness, speech impairments, visual impairments or blindness, serious emotional disturbances, orthopedic impairments, or other serious health impairments.)

7. Check one answer only. This question considers ONLY OCCUPATIONAL education courses. Be as objective as possible.
8. Check one answer only. This question considers ONLY ACADEMIC education courses. Again, be as objective as possible.
9. Check one answer only. Some students will not have taken a standardized achievement test - in that case check the box at the left, only. Please interpret test results carefully to ensure that the information is accurate.

Statewide Student Profile Study
Bureau of Occupational Education Research
New York State Education Department

A STUDY OF PERSONAL BACKGROUND CHARACTERISTICS
OF SECONDARY PUBLIC SCHOOL OCCUPATIONAL
EDUCATION STUDENTS IN NEW YORK STATE

Instructions for the Person Administering the Student Questionnaire

You should assure the students that their privacy will be maintained. Their names will be removed after we obtain additional information from the student's unit record.

Information needs to be accurate in order for research conclusions to be valid. However, if the student doesn't know, have them make a good guess. No questions should be left unanswered.

Question by Question

1. Check all answers that apply.
2. Student's present age.
3. Check one answer, only. Parent is intended to mean natural parent, step-parent or surrogate parent.
4. Check one answer, only. This answer should include all brothers and sisters living at home with the parent(s).
5. Check one answer, only. This answer should include all income from any family members. The ranges are wide so good guessing will be acceptable when accurate information is not known. You should help the student with this if necessary.

Statewide Student Profile Study
Bureau of Occupational Education Research
New York State Education Department

APPENDIX IV

OCCUPATIONAL EDUCATION

DIRECTORS CONTACT LETTERS

(letterhead)

Dear (Chief School Officer)

We appreciate your willingness to participate in a study being conducted by the State Education Department, Bureau of Occupational Education Research. The study is being done to determine the broad characteristics of secondary students enrolled in Occupational Education Programs in New York State.

We are now ready to collect individual student data on a sample of students from your district. These data will be put together with other data collected from across the State. An analysis of these aggregate data will provide Occupational Education Planners with information which can be used to: adjust curriculum to reflect the ability needs of students; identify ancillary services needed by students, and show which students are now enrolled in occupational education. Soon after April 16, 1979, the person in charge of Occupational Education in your district will be contacted to make arrangements for your staff to collect these data.

For your information, copies of the questionnaires and instructions are attached. DO NOT FILL THESE OUT. THEY ARE FOR YOUR INFORMATION ONLY. If you have questions about the study or questionnaires, please call (L518) 474-6386 and ask for Alan Robertson or Lorin Cooper.

Thank you for your assistance.

Sincerely,

Gerald L. Freeborne
Assistant Commissioner for Occupational
and Continuing Education

GLF/bl
Encl.
cc: Occ. Ed. Director

(letterhead)

Dear (Chief School Officer)

The State Education Department, Bureau of Occupational Education Research, is conducting a study to determine the broad characteristics of Secondary Occupational Education students in New York State. Soon after February 5, 1979 we will be contacting the person in charge of Occupational Education in your district to determine what kind of information is available on these students.

For your information, a copy of the telephone questionnaire we plan to use is attached. DO NOT FILL OUT THIS QUESTIONNAIRE. IT IS FOR YOUR INFORMATION ONLY. If you have questions about the study or the questionnaire, please call (518) 474-6383 and ask for Lorin Cooper.

Thank you for your assistance.

Sincerely,

Alan G. Robertson, Chief
Bureau of Occupational Education
Research

AGR/bl
Enclosure
cc: Dr. Soucy

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(letterhead)

Dear (Occupational Education Director)

The State Education Department, Bureau of Occupational Education Research, is conducting a study to determine the broad characteristics of Secondary Occupational Education students in New York State. In order to know what information is available on individual students, we need your help.

A telephone survey will be conducted beginning On February 5, 1979. We plan to call you soon after that date. A copy of the questionnaire is enclosed so that you can be prepared to respond to the items being surveyed when we call.

If you have any questions about the study or the questionnaire, please call (518) 474-6386 and ask for Lorin Cooper.

Thank you for your help.

Sincerely,

Alan G. Robertson, Chief
Bureau of Occupational Education
Research

AGR/bl
Enclosure
cc: Dist. Supt.